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LAWS AND THEORIES IN THE PHYSICAL SCIENCES*

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I

THE complexity of the procedures and arguments used in the sciences, and the vagueness of the terms "law" and "theory", make it difficult to say anything which is both informative and general. Although this discussion is restricted to the physical sciences, I do not claim that my remarks apply to all the laws and all the theories in this field. I intend to describe some of the definitive characteristics of a certain kind of law, to indicate that there are some laws of this kind and some which are different, and to consider the way in which laws of this kind function in a science. I shall then consider theories in the same way. Statements of laws and theoretical statements are sometimes contrasted with factual, material object, or observation statements, which, it is implied, are pure and simple. If this purity and simplicity are only apparent, the contrast loses much of its force. Consequently I shall begin with a brief discussion of the kind of statements upon which laws and theories are based: a discussion which is intended, primarily, to make explicit what is assumed in the rest of this paper.

Some material object statements are the result of inference, while others are the result of inspection. In the first case, the evidence upon which the statement was based could be described, but in the second it would be unusual to speak of evidence. A statement based on inspection may turn

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out to be false: the man who made the statement may later admit that he was mistaken, deluded, or the victim of an illusion. To admit this, however, is to admit that some statements are more certain than others. Furthermore, it is possible to guard against mistakes. Some material object statements are less fallible than others because they make a smaller claim. Compare "Metals expand when heated", "This metal expands when heated", "This metal was heated, and it expanded" and "A piece of metal was heated, and it expanded". There are some material object statements which we describe as certain, and of which we say that we know them to be true. It is admitted that they could conceivably turn out to be false, but in saying that they are certain or known to be true, part of our meaning is that no further tests would increase our confidence in them, and that we have no reason to expect that they will be falsified.

Now consider what the physicist or chemist does when he takes a reading: he records the number which is opposite an engraved mark, a pointer, or a column of liquid, or he writes down the numbers which are stamped on the weights that he has used. Taking a reading is not always as simple as this, but it often is, and in designing experiments every effort is made to make it so. These readings may be said to make a minimum claim: to be correct they have to satisfy only one condition.

The development of an experimental technique is partly the development of a procedure which is such that, first, a mistake is not likely to be made, and secondly, if a mistake is made, then it will be detected. Liquids are coloured so that they may easily be seen; small scales are read through telescopes; verniers and other devices are used in measurement, and where changes of colour are important, colour charts are attached to the apparatus. Simple rules of procedure are adopted in order to reduce the chance of error. A single reading is not accepted unless it is impossible to take more, and this repetition is one of the ways of detecting mistakes. When a new technique is being developed, the apparatus is

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modified until consistent readings can be obtained, and until this is possible the results are not accepted. The difficulty of obtaining consistent readings emphasises the importance of exactly specifying the conditions in which they were obtained.

The numbers which are written in a note-book are correct or incorrect readings, but beyond the context in which they were written, these numbers depend for their meaning on such expressions as "millimetres of mercury" or "degrees Centigrade" which are written after them, and this is to say that they have meaning within a system of measurement or with reference to a theory. I shall refer to a reading together with an expression of this kind as an observation, and to a statement that a certain observation was made under certain conditions as an observation statement. The physicist or chemist must know not only how to take readings and how to interpret them, but also what readings to take and when to take them, and this depends on his knowledge of accepted techniques, systems of measurement and theories, and of their relevance to the work he is doing. Furthermore, the apparatus used in making observations is the result of the application of theories and techniques. To quote Mr. Mackie: "observation includes thinking and relies on background knowledge".[1]

In the event of a change in a system of measurement, or of the adoption of a new theory, readings would have to be re-interpreted. It might be the case that they could no longer be interpreted because a factor which was not taken into account at the time had been found to be relevant, but they would not become incorrect. Observation statements are not falsified by subsequent developments, but they may cease to be useful or interesting. These statements make a claim greater than readings, but still very limited: that a particular observation was made in conditions of a certain kind—conditions which were examined and recorded with care. They are the result of methods which are designed to eliminate errors, and consequently they are among those statements which are certain or known to be true, in the sense which I have specified.

II

Laws of the type which I shall discuss are usually called empirical laws. Scientists normally apply this term to a law which is based on observed regularities, but which has not been explained by a theory. I shall consider as an empirical law any law which was *originally* based on observations, as distinct from being derived from a theory. Thus in saying that a law is an empirical law, I imply that scientists did describe or would have described it as an empirical law, but not that they do so now. The second characteristic of an empirical law is that the statement of the law has no terms which do not appear in the observation statements on which it is based. Boyle's Law, for example, might be described, provisionally, as a generalised observation statement. A further necessary characteristic of an empirical law is that values of its variable terms may be determined independently of each other, and without presupposing the law. Boyle's Law, Hooke's Law and Snell's Law satisfy these three criteria. In contrast, Stokes's Law is not an empirical law, because it was the result of theoretical work; Avogadro's Law does not satisfy the second condition, since it refers to particles which cannot be directly observed, and Newton's Second Law is excluded because force and mass are not independent in the required sense.

To the question, "Is an empirical law which is accepted within a science true?" at least four answers have been given. First: that such a law could be true, and could be known to be true. Second: that such a law is true, but in a sense different from the sense in which observation statements, for example, are true. Third: it is held that we cannot know an established law to be true, but that we are justified in asserting it to be true, in the only sense of "true". Fourth: it is said that an empirical law is neither true nor false. This list is neither exhaustive nor detailed, but many of the proposed answers to this question fall under one or more of these headings, and the list will serve as a basis for a discussion of the question.

The belief that empirical laws could be known to be true has led to the search for a principle which would reduce induction to deduction. I shall not discuss views of this kind here, as I think that it can be shown, first, that even if it were possible to formulate such a principle, it would not be possible to establish its truth, and secondly, that it is not possible to state the principle in a way that would guarantee any particular empirical law.

As an example of the second kind, I have in mind the view expressed by Dr. Waismann when he wrote: "a law of nature is never true in the same sense in which, say, 'There is a fire burning in this room' is",[3] but I should add that I do not know whether he still holds such a view, nor do I know whether he meant by a "law of nature" what I mean by "an empirical law". It may be argued that the word "true" is used in quite different ways when we speak of true statements on the one hand, and of true Christians on the other; that it is necessary, in order to avoid certain logical paradoxes, to say that "true" as applied to statements also has different senses, and it seems obvious that if empirical laws are ever true, they are true in a sense different from that in which observation statements are true. If I look at a pointer, see that it points to the figure five, and say that this is so, I should be at a loss to say on what evidence my statement was based, and if I were asked to carry out additional tests, I should not know what to do. If I am later convinced that my statement was false, then I have to admit that I was mistaken or deceived. If, on the other hand, I say that an empirical law is true, I am not claiming to have seen that all gases behave in a certain way, for example, but rather that all the available evidence supports the law, and that consequently the law would be used with confidence in order to make predictions. It is always possible to make additional tests, although this may be held to be unnecessary. If the prediction fails, it does not follow that someone must have been mistaken or deceived.

One of the consequences of saying that an empirical law is true if it is supported by all the available evidence, is that we might have to say of a law that it *was* true, but that it *is* false. This might be regarded as an objection, or it might be offered as an additional reason for saying that laws are true or false in a special sense. The truth of statements about statements may be different from the truth of statements, but from this alone it does not follow, and of course Waismann has never suggested that it does follow, that a law statement and an observation statement are true in different senses. Indeed, even if there are different levels of language, the fact that the terms in a law statement are exactly those in the relevant observation statements suggests that both are on the same level.

A further consequence of this view may be that if two statements, true or false in different senses, are related, then the statement of this relation is true or false in a third sense. I am not sure of this because, although it is clear that "the known relations of logic"[8] do not hold between statements at different levels, the nature of the "looser" relations which do hold is obscure. The premises of a syllogism may suggest the correct conclusion to some people, and an incorrect one to others. One statement may suggest or invite us to accept another, and this may be because the statements are related in a certain way, but to say that the one suggests the other is not to describe the logical relation between them. A "looser" relation must be either a relation which is not a logical relation, or a logical relation which has not yet been specified. But the former view is untenable in this context, because it implies that although certain observation statements may suggest a law, the truth or falsity of the law is quite independent of the truth or falsity of the observation statements. Consequently, to hold this second view is to assert, first, that no satisfactory account of the relation between an empirical law and the observation statements on which it is based has yet been given, and secondly, that no such account could be given in terms of "the known relations of logic".

The difficulties in this position arise, here, from the attempt to explain one fact. When a law is used for prediction, it appears to function as the premise in a deductive argument, and yet if the prediction fails, the law is seldom rejected. These difficulties may not be insuperable, but I think that they can be avoided, and that an adequate account of empirical laws and of their relations to observation statements can be given without multiplying the senses of "true", and without introducing unspecified relations.

The third position is that since an empirical law is an unrestricted generalisation we cannot know it to be true, but that if the law has been properly established we are justified in asserting it to be true. It is maintained that the law, together with a number of statements to the effect that the law applies in certain conditions, and a statement of the initial conditions, implies a certain outcome. The list of boundary conditions is not complete. If the prediction fails, then the protasis is falsified, but since it is a conjunction of an indefinite number of statements, it is always possible to retain the law. We may say either that one of the specified boundary conditions was not satisfied, or, if we think that they all were, that there is an unspecified condition which was not satisfied. Later we may be able to specify this condition and add it to the list.

It seems that in choosing between this position and the last one, we have to choose between an unspecified relation between precise statements, and a strict relation between two statements, one of which can never be completely stated. It is also important to note that to assert a law to be true when it is admitted that it is not known to be true, is merely to announce the intention of using it for prediction: what is known to be true is that the law has been found to apply in certain conditions.

This analysis does not go far enough to do the job for which it was designed. The statements of boundary conditions are separated from the statement of the law in the protasis, so that we may still assert the law to be true if the apodosis is found to be false. But the history of Boyle's law, for example, shows not only that we have increased and refined our knowledge of the pressures and temperatures at which it has been found to apply, but also that we have changed our ideas about what it applies to. Originally it was said to apply to the air, later to gases, and since then our notion of what is to count as a gas has been continually modified. At very low pressures the law applies to all gases; at pressures nearer normal it applies, at any given temperature, to some gases and not to others; in some cases it applies exactly, in others approximately, and in others not at all. To state the law as applying only in those conditions in which it applies exactly to all gases, would not do justice to the way in which the law is used. If this is taken into account, the analysis would involve not only the separate statement of the conditions in which the law applies, but also statements that in certain conditions it applies only to certain gases, and in other conditions to others. The statements of conditions cannot be separated from statements about what the law applies to in these conditions. In order to explain the persistence of Boyle's Law, and in order to enable us to retain this law, it is necessary to separate from the law statements not only of the conditions in which the law applies, but also of what it applies to in any of these conditions. But to do this is to empty the law of all content, leaving only a formula or equation which by itself could be neither true nor false, and which, consequently, could never function as the premise in an argument. The only thing about Boyle's Law which has remained unchanged, except possibly in notation, is "$PV = K$", and this, by itself, is neither true nor false, any more than "$x^2 + y^2 = 3$" or "All S is P" is true or false. This conclusion, which is the basis of the fourth position[4] which I shall consider, implies that an empirical law cannot function as a premise. This consequence is, I think, in accord with practice in the sciences. When a problem is solved, or a prediction made by means of an empirical law, the premises are the initial conditions, and the conclusion the final conditions; the law is used as a formula or rule of inference, and if the prediction fails, it is concluded, not that the law is false, but that conditions were such that it did not hold.

The collection of statements which is normally described as the exposition of an empirical law is to be analysed as, first, a formula or equation which is satisfied by the observations which led to the formulation of the law, and which, by itself, is neither true nor false, and secondly, statements of conditions in which the observations were taken, and statements of what was being examined when they were taken—samples of air, steel springs or glass blocks, for example. For brevity, I shall treat both kinds of statements as stating conditions. These observation statements are known to be true.

Many experiments are such that in adjusting the apparatus in order to take a fresh reading, any marked irregularity in the rate of change of possible readings would be noticed.[5] Now any given set of observations will satisfy large numbers of different equations, but these equations are such that, within the range of the given observations, they do not differ by an amount that could be detected, for if this were not so, it would be easy to eliminate some of them. Consequently the difference between the equations will become significant only when we extrapolate beyond the given observations. It should be noted here that laws are very seldom applied in conditions different from those in which they have previously been found to hold. The formulation of a law leads to further investigation of the conditions in which it holds, and this work may be carried out just in order to see whether it can be applied in certain conditions. There remains, however, the question of choosing between different equations which are satisfied by the given observations. I shall not consider this here. I say only that it appears that the simplest equation is chosen, and that this choice was based on a belief about the nature of the world, but that it is now a matter of economy of effort. The relation between any set of observations and any equation is unambiguous, and to say that, given certain observations, a certain equation is chosen, may be to imply something about the equation, but it is not to describe any additional relation between the two. There might be reasons for describing this relation as mathematical rather than logical, but there is no reason to describe it as a loose relation.

Despite these limitations of the use of a law for prediction, it is still the case, of course, that laws are applied in situations numerically different from those in which they were established, and in conditions which, although they appear to be the same as those in which the law has been found to hold, are not known to be so. It might be contended that when a law is so applied, it is inferred that the law will hold, and that this inference is based on some general premise, such as: "If a law has held in certain conditions, then in exactly similar conditions it will always hold." But this is a disguised tautology, for although we have independent criteria for similar conditions, one of our criteria for judging whether two sets of conditions are exactly the same is that the same laws hold in both cases. If a law applied in one case and not in the other, then we should say that the conditions must have been different, even though we may not be able to say what the difference was.[8] Subsequent investigation might show that a factor which had not been taken into account was relevant, but if it did not, then it would be concluded that some of the terms in the observation statements were not sufficiently precise. The making more precise of such terms would involve a new way of interpreting readings. If a scientist or an engineer makes any inference before applying a law, his conclusion is not that a certain law must hold, but that a certain law is the correct one to apply. This conclusion would follow from some such suppressed premise as this: "The correct law to apply in any given situation is the law which has been found to apply in situations in which the conditions known to be relevant are known to be the same as those in the given situation." This, to borrow Max Born's expression, is a "rule of craft".

This procedure is justified by its success in the past. Those who have suggested that this is no justification have not, as far as I know, been able to say what would be a justification. No such justification could be given in the seventeenth century, of course, and this is why belief in the uniformity and the simplicity of nature is important in the history of science, although not in its logic. It is sometimes asked whether this procedure is rational. This is, in effect, to ask whether, when making predictions, it is rational to take into account all the most carefully collected and examined evidence which is believed to be relevant, and the answer is that this is just what we mean by "rational" in this context. A physicist, a chemist or an engineer may have more confidence in one prediction than in another. It is possible to say that in certain cases a certain degree of confidence is reasonable, and where it is important to be able to do so, methods of assessing this degree of confidence have been developed, but these methods are themselves based on what is known to have happened in the past.

To say that empirical laws are neither true nor false is to state this fourth position too crudely, for although "$PV = K$" is neither true nor false, this formula by itself is not Boyle's Law. The law is a formula together with a large number of statements of conditions. The terms in these statements may be modified, and the list of statements may be increased. To treat the law as a generalisation about the way in which all gases behave in certain conditions, and to ask if this general statement is true or false is to invite confusion. The scope of the generalisation is such that we could not possibly know it to be true in the way in which we know an observation statement to be true. But the fact that the law is still used nearly three hundred years after its original formulation suggests that it must be at least partly true. On the other hand, the continual modification of the law suggests that previous formulations have been, and that the present formulation might be, found to be false. We *could* say that empirical laws are true in a sense different from that in which observation statements are true, but we should then have to give an account of the logical relations between statements which are true or false in different senses. If the distinction is not made between inferring that a certain law is the correct one to apply in a certain situation, and making inferences in accordance with the law, then the relation between laws and observation statements appears to be loose and difficult to specify. This fourth analysis does not introduce inferences which cannot be justified, relations which are not specified, or premises that cannot be stated. Instead of representing the scientist as asserting to be true what cannot be known to be true, or as establishing truths of a special kind, it represents him as discovering formulae which apply in certain conditions; as investigating these conditions, and as predicting by means of these formulae, and this is, I suggest, more closely in accordance with the practice of scientists, although it may differ from what some of them preach. Empirical laws, however, are a small part of the physical sciences, and an analysis of them must take account of the way in which they are related to theories.

III

The statement of an empirical law contains no terms which do not appear in the observation statements from which it was derived. In contrast to this, it is a necessary characteristic of the kind of theory with which I am concerned that it shall have terms which do not appear in the empirical laws, or, consequently, in the observation statements on which it is based. I shall take as an example a theory which is simple and well known: the Kinetic Theory of Gases. The empirical laws upon which this theory was based were Boyle's Law and Charles's Law, which refer only to the observed pressures, volumes and temperatures of enclosed gases. The theory, on the other hand, refers to very small elastic particles: a term which does not appear in either of the laws. It is because of this feature of some theories that, although industry may be necessary in the sciences, it is not sufficient. Major contributions to the sciences have been made only by men of imagination, and Bacon was quite wrong in supposing that the sciences could ever be developed without such men.

The terms which appear in the theory but not in the laws are not precisely defined. Gas particles are very small, perfectly elastic, and they and their environment are such that the laws of classical mechanics apply to them exactly. This is an example of one of the ways in which two theories may be related. In collisions these particles behave as if they were spherical, but whether they are spherical or not is not stated. Their velocity, mass, size, shape, and any other properties that they may have are not specified. This "open texture", to borrow Waismann's term, gives the theory a flexibility such that it may be developed and modified in order to take account of observations subsequent to its formulation. Those who advocated that theories should be constructed with a precision that would preclude metaphysical speculation failed to see that this would also preclude theoretical speculation, which is essential to the development of science.

Whether the terms peculiar to a theory refer to postulated entities or whether they refer only, although in a special way, to the entities to which the relevant observation statements refer, has been debated for many years. Is the Kinetic Theory, for example, to be interpreted as implying that there are gas particles, or only that gases behave as if they were collections of elastic particles? This issue is raised when it is asked whether electrons were discovered or invented, and whether it is reasonable to suppose that mesons are really there.[7] It is not only philosophers who are interested in these questions: Glasstone, for example, in his *Textbook of Physical Chemistry,* describes the Brownian Movement as "One of the most striking and important pieces of evidence in favor of the kinetic theory and of the real existence of molecules".[8] It is striking because it would enable any one of us to see, just as Ostwald saw, the molecules in action. But what exactly did Ostwald see?

Small grains of powder moving erratically in a liquid, as if they were being bombarded by very small particles, which he did *not* see. To show that the observed motion of these grains of powder is just what it would be if they were being agitated by the impacts of particles which have the properties of those particles which are used to explain the behaviour of gases and liquids, to show this, it was necessary to refer to many other observations and to make elaborate calculations. This was the work of Perrin and Einstein. As Schroedinger says of observations which are, in the same way, striking evidence for the real existence of mesons: "In their apparent simplicity they appeal to the vivid imagination of an intelligent child. They would have set any of the old warriors for the cause of atomism, from Democritus down to Dalton and Boltzmann, gasping with joyful excitement. Yet they are not as simple as they seem. This is witnessed by the pages and pages of intricate formalism that is often devoted to account for even the simplest of them."[9] Now, while I do not wish to join Schroedinger in patting the intelligent Democritus on the head, I think it is important to realise that these striking phenomena are evidence direct only in comparison with the other evidence on which the relevant theories are based. Are we to say, then, that what we actually see are columns of mercury, specks of powder moving in liquids, and marks on photographic plates, and that we invent molecules and mesons in order to deal economically with a great variety of such observations?

Mr. Thornton has suggested that if we say that the electron was invented in 1897, then we must also say that Neptune was invented in 1846.[10] The calculations of Adams and Leverrier are comparable in complexity with those of Einstein, and what was seen through the telescope would have been as meaningless to the layman as the photographic plates which show the path of a meson. Despite the similarity of these two cases, there is an important difference between them, a difference which will show the second characteristic of the kind of theory with which I am concerned. If it is asked what Galle discovered in 1846, we can say that he discovered that there are eight planets, not seven: that a region of space which was previously thought to be comparatively empty was found to contain a very large spherical object. This issue is sometimes raised in connection with micro-organisms, and in this context, too, we can say that it was discovered that the air contains not only insects and particles of dust, but also very small organisms. But consider the so-called discovery of gas particles: we have not discovered that there is something where we had thought that there was nothing, nor have we discovered that gases contain something when we had thought that they contained nothing. We have not discovered that in addition to tables, benches, flasks and gases, there are also molecules. If it is accepted that a gas is a collection of molecules, then to satisfy oneself that a cylinder really does contain a gas is to satisfy oneself that the molecules are really there. Clearly this does not answer the question, but it shows that it may be dealt with by considering the function of such statements as "A gas is a collection of molecules". Furthermore, I can see no other way of dealing with the question, for those who disagree on this matter seldom dispute about the reliability of the relevant evidence, nor do they suggest that further experiments should be made. Statements of this kind are characteristic of the exposition of theories of the type with which I am concerned: theories which are sometimes described as being about the structure of matter. The body of theories about the structure of molecules and atoms and the properties of fundamental particles have the two related characteristics which I have described, and the Kinetic Theory of Gases is a simple example of such theories. I shall use the word "theory" to refer only to theories of this kind. Theories about the habits of birds, the origin of species, the cause of a disease or the function of an organ are not theories of this kind, although they may be related to such theories. And there are theories which are such that it would be difficult to decide whether they are of the kind with which I am concerned, or not.

It is sometimes asked whether a theory is true, and it is suggested that this is an important question, because it appears that if we knew, for example, that "A gas is a collection of particles" is true, or that it is reasonable to believe that it is true, then the real existence of these particles would be established, or at least made probable. But some theories which are accepted cannot be true. Incompatible theories and theories which are not self-consistent are common in the sciences. Although difficulties of this kind are usually resolved, there is no reason to suppose that they will not continue to arise. Indeed it is to be hoped that they will, for they are among the most powerful stimuli to scientific enquiry. To say that, because one of the two incompatible theories is better supported than the other, the first is true and the second false would be undesirable. Mr. Thornton has shown the consequences in the early nineteenth century of using a preferred theory as a criterion of the acceptability of experimental results, and such situations, which are not as uncommon as is generally supposed, while not being a necessary consequence of such a terminology, would certainly be invited by it.[11] If, because two theories are incompatible, they are both said to be false, then it is necessary to explain why they are used rather than any other false theories. If they are retained because they work, I suggest that it is more important to distinguish theories that work from those that do not, and to go on to see what it means to say that a theory works, than to speak of them as true or false. I suggest, too, that it is misleading to describe as false a theory which is of value in pure science and reliable in practice, and that it is misleading to speak of the vast majority of theories as being false. I think it is possible to give a satisfactory account of theories, of the relation between theories and empirical laws, and of the status of sub-microscopic entities, without describing theories in terms of truth and falsity.

Many of the characteristics of a theory are revealed if it is considered as a language. I want to make it quite clear that I am not saying that a theory *is* an artificial language.

If I may be allowed a further analogy: an artificial language is rigid and sterile, like a wax flower, but a theory, on the other hand, is more like a hot-house plant. Its development is controlled more or less successfully by skilful pruning and careful attention. If it lives, it grows more rapidly than a normal plant, it is more fertile, and it dies sooner. The vocabulary of a theory is partly its own, partly that of other theories, and of mathematics, and partly that of ordinary language. In a theory many of the features of natural languages are exaggerated.

I shall call observation statements, including complex statements of the conditions in which empirical laws have been observed to hold, O-statements. Statements in the language of theory are T-statements. Some O-statements can be exactly translated into T-statements, but others cannot. That a gas is yellow-green or that it has an acrid smell, for example, cannot be expressed in terms of the Kinetic Theory of Gases. Some T-statements cannot be translated into O-statements. This feature is present, although to a smaller extent, in natural languages. Some T-statements are logically related to others, and some O-statements are logically related to other O-statements. But the pattern of the logical relations in a theory is different from that among the O-statements. By this I mean that there will be statements such that O_1 and O_2 is a conjunction, while the translations T_1 and T_2 are the terms of an implication. As well as T-statements and O-statements, there are other statements which I shall call translation rules.

It is usually difficult to say precisely when a theory began. We might say that the Kinetic Theory was formulated by Maxwell, or Clausius, or Bernouilli, but more than a hundred years earlier Bacon had said that heat is the restrained and expansive motion of the smallest parts of bodies. "Atom" is now a scientific term and in the time of Democritus it was not, but when did atomism become a theory? Theories are not constructed, they grow out of earlier theories and doctrines just as a language develops imperceptibly out of earlier languages. In the history of theories, however, there are critical periods when a theory is "formulated", or "reformulated", or "put on a scientific basis", and it is such a period that I shall consider. When the Kinetic Theory of Gases was formulated it was proposed that a gas should be regarded as a collection of particles with the properties which I have already described. It was further proposed that the rate of change of the momentum of the particles per unit area at the walls of the container be regarded as the observed pressure of the gas, and the mean kinetic energy of the particles as a measure of the temperature of the gas. These proposals, if the theory is adopted, become translation rules.

The particles are so described that it follows that the rate of change of their momentum per unit area multiplied by the volume in which they move is constant, provided that their mean kinetic energy remains constant. It also follows that if the rate of change of momentum per unit area is constant, the mean kinetic energy can increase only if the volume increases. Now, if we apply the translation rules to these two theoretical statements, we have, first, Boyle's Law, and secondly, Charles's Law. The statements O_1, that this is a certain mass of hydrogen at such-and-such a temperature, and O_2, that this gas obeyed Boyle's Law within a certain pressure range, are merely an observed conjunction, but their translations are such that T_1 implies T_2. This is the sense in which the Kinetic Theory explains the gas laws. Empirical laws are said to be explained when they are related to a theory and thus related to other laws and to other observations. The establishment of such relations increases the confidence with which we apply the laws. This is not the only sense of "explanation", even within the sciences, but it is one of the most common, and it is unobjectionable, because there is no suggestion of finality in it. It is objectionable, however, to project the logical necessity which holds within the theory on to the world, and to talk of discovering the necessity which underlies phenomena. To do this is to over-look the way in which the logical structure of a theory is constantly changed.

In order to take account of additional or more accurate observations a theory is changed in a number of ways. The translation rules are modified: the observed pressure of a gas becomes the rate of change of momentum of the particles per unit area less the cohesion pressure, and the observed volume becomes the theoretical volume plus the volume of the particles. Here the particles have been given the additional property of attracting each other, and, in certain conditions, their volume is specified. The open texture of the term "gas particle" makes changes of this kind possible. Not only may the theoretical terms be modified, but also the terms in the observation statements, and this is why, as I have pointed out, changes in a theory may lead to the re-interpretation of readings. The logical relations between T-statements is often based on other laws and theories, and this is a further source of change. The behaviour of large numbers of gas particles was treated by classical statistics, but quantum statistics have been found to be more appropriate in certain contexts. When changes in a theory are made, the old rules are not completely discarded. Gas particles attract each other, but at very low pressures this attraction is negligible. In this way, levels of sophistication, comparable with those in ordinary language, develop in a theory, and we talk of the simple kinetic theory and the developed theory, and of statements as being of different orders of accuracy.

As the logical structure of a theory is developed, and as the fundamental terms are more precisely defined, it is possible to work out implications which were not foreseen when the theory was formulated. There may be translation rules for these implied T-statements, or it may be necessary to formulate new ones. Yukawa, for example, worked out that, according to the accepted theories, there should be a free particle about one hundred and fifty times as great as the electron. Such a particle, one of the mesons, was later detected. This is the way in which a theory may lead to genuine discoveries.

I want to consider now some of the conditions which lead to a theory being described as unsatisfactory. The development of a theory consists of changes of four kinds, changes which are not independent: first, the terms in the theory may be modified or made more precise; secondly, the rules of inference within the theory may be changed; thirdly, the translation rules may be changed; and fourthly, the terms in the relevant observation statements may be modified. Because O-statements are related to, or might even be described as a part of, ordinary language, the possibility of modification here is restricted. Consequently the development of a theory will consist mainly of changes of the first two kinds. The difficulties which may arise from the continual modification of the fundamental terms in a theory are exemplified by the theory of the ether. To quote Chalmers: "The more the ether was studied, the more extensive and remarkable became the properties with which it had to be endowed . . . . At one time the complexity . . . of its assigned properties seemed to some physicists seriously to suggest the simultaneous existence of six ethers side by side, or interwoven throughout all space . . . ."[18] The difficulty here seems to be that the complexity of the ether leads to a total loss of analogy. Having no experience of anything like this medium we do not know what rules of inference would be appropriate in such a theory, and consequently we have no means of working out the implications of the theory. Indeed the theory has no implications which lead beyond the observations which it was designed to explain, and consequently it is sterile. Furthermore, because the complexity of the ether is far more puzzling than the relevant observations, it is useless as an explanation.

Difficulties of the second kind are exemplified in contemporary work on fundamental particles. Not only was Yukawa's meson discovered, but also seven or eight others. The theory was equal to this, inasmuch as the charges and masses of all these mesons have been worked out. But Powell, commenting on a table which shows the characteristics of fifteen fundamental particles, writes: ". . . the variety displayed in this table appears to us as an assembly of empirical facts without any coherence, and this emphasises the inadequacy of our present theoretical views".[13] The trouble here is that, although the translation rules, the rules for interpreting observations in terms of the theory, have proved satisfactory, the logical structure of the theory has broken down. T-statements are no longer related as they must be if they are to explain, or, to use Powell's words, to give coherence to the observations.

So far I have been concerned to establish an analogy between a theory and a language, and to show that such an analysis gives a coherent account of the way in which theories are developed, used and found to be unsatisfactory. The analogy is not complete—the language of a theory could not be anyone's mother tongue, no matter how often he used it or how early he learned it—but I think that I can carry the analogy further than I have yet done.

The vocabulary of a theory is partly that of ordinary language, but words which are used in both often have different senses. We might say that, from all that we had heard, we had inferred that so-and-so was a tall man, but that when we met him, we saw that he was not. When we saw him, our inferences were at an end. When we "see" molecules or mesons, however, the most elaborate inferences are necessary before we can be sure of what we "see". But although some of the ways in which we use "see" are changed when we move from ordinary language to the language of a theory, others are not. "Seeing is believing", and consequently some observations which are much the same as the others that support a theory are picked out as being more striking and more conclusive than the others. It is partly because it is impossible to remove, by definition and qualification, the "emotive meaning" of a word that to describe a theory as true or false is undesirable.

Both O-statements and T-statements are true or false. If a T-statement can be directly verified, then it must be possible to translate it into O-statements, but this does not mean that such a translation is actually made. A physicist who examines a photographic plate does not have to describe the lines on the plate and then translate his observations, although he may do this if he is describing his methods. In this context it would be more appropriate to describe the T-statements as observation statements in the language of the theory. Despite this, however, the distinction between O-statements and T-statements does not break down, for it is always possible to speak either of the pressure of a gas or of the change of momentum of particles per unit area, and either of a mark on a plate or of the path of a meson, although one way of speaking may sometimes be out of place or pointless. If a translation rule is questioned, it is necessary to consult an exposition of the theory, just as a dictionary might be consulted in order to see what "dog" is in German. Because theories change more rapidly than natural languages, if an exact translation is required it might be necessary to consult publications subsequent to the formulation of the theory. It is appropriate to ask whether T_1 is true, or whether O_3 is true, and translation rules may be learned or checked, but it is inappropriate to ask whether a theory is true. Just as English is widely used, Welsh only in some districts, and Anglo-Saxon not at all, so some theories have a very general application, others apply only in restricted fields, and some are of interest only to the historian of the sciences. A theory is adopted and used: observations confirm its usefulness or show it to be of limited value for explanation and discovery. Despite the situation described by Chalmers, some physicists are still concerned with the ether, and this shows, as many other examples would show, that theories are not abandoned. They die out, leaving behind them the observations on which they were based, those which discredited them, experimental and mathematical techniques, and some technical terms.

I have already discussed the relation between a theory and an empirical law, considered as a formula together with statements about the conditions in which it holds. The law is not deduced from the theory, but is related by translation to theoretical statements which are deductively related to each other. I shall not attempt a further analysis of the relation between an observation statement and its translation in a theory at present. The application of translation rules is to be distinguished from the formulation and the modification of these rules, for the former calls for skill, and is done correctly or incorrectly, while the latter demands imagination and insight, and cannot be described as correct or incorrect.

The sentence "A gas is a collection of particles" may be used in teaching a theory or in applying it, and to use this sentence without qualification is to imply that the theory is established and unrestricted. To say that some T-statements such as "That is the path of a meson" or "A hydrogen molecule is of such and such a size" are true is to say that there are mesons and gas particles. Against the contention that a gas merely behaves as if it were a collection of particles, it may be argued that experiments show that a gas actually is a collection of particles. If it is objected that these experiments confirm only that a gas behaves as if it consisted of particles, we may ask what sort of observations would be accepted as evidence of the existence of gas particles. Since the mass of such particles, their size, their most probable velocity in any given circumstances, and the number of them present in a given volume, can be calculated, it would appear that evidence of a more direct kind is required. But gases do not consist of particles which can be touched or seen, either with the naked eye or through a microscope, nor do they behave as if they consisted of such particles. In the early stages of a theory there is a point in saying, for example, that electricity behaves as if it were a fluid, for this leads to attempts to discover whether it is a fluid or not. And if it is said that in acoustics, gases behave as if they were continuous fluids, the point here is that other observations have already shown that a gas is not such a fluid. But in an established and unrestricted theory the situation is different: if it is accepted that there are no known circumstances in which a gas behaves as if it were not a collection of particles, but also contended that no possible observations would lead us to say, not that a gas behaves as if it were a collection of particles, but that it is such a collection, then the distinction becomes pointless. If we say that A behaves as if it were a B, we could then say either that B behaves as if it were a C, or that B is a C. Either the former leads to a statement of the latter kind or it follows that all statements are really of the "as if" form. If the statements that a gas behaves as if it consisted of particles, and that a gas is a collection of particles, are exactly equivalent, then the use of the expression "as if" is pointless. If, on the other hand, the two are not equivalent, then the former suggests that a gas behaves as if it were composed of things which we can describe in a way more direct than that in which we describe the behaviour of gases. This is not so. A gas does not behave as if it consisted of particles of a kind with which we are familiar. Gas particles are unlike billiard balls, specks of dust, or any other particles of which we have direct experience. It is a mistake of the same kind to say that all the evidence for the existence of molecules or mesons is indirect, for in this context it is impossible to describe evidence which would be, in contrast, direct.

Experiments showing the escape of phlogiston from a substance can still be repeated, but further experiments would show that it is impossible to give a coherent account of what phlogiston is, or how it behaves. Our present theories may develop so that we can no longer consistently talk of electrons and protons, but the experimental results will remain, and they will be taken into account in subsequent theories. This does not mean that the language in which we describe our observations is, in some way, closer to reality than theoretical languages, but only that it changes more slowly. I agree with Mr. Thornton that "Sir J. J. Thomson is entitled to the claim that he discovered the things which coursed through his evacuated tubes",[14] but I would add that we may not always describe these things as electrons, or even as things. To deny this would be to forget that science is an activity, and to suppose that it is approaching completion.

NOTES.

[1] John Mackie: "The Nature of Facts". *The Australasian Journal of Philosophy*, Vol. XXX, No. 2, p. 118.

[2] "Language Strata", published in *Logic and Language* (*Second Series*) (ed. A. G. N. Flew), Blackwell, 1953, p. 23.

[3] F. Waismann: "Verifiability", *Proceedings of the Aristotelian Society*, Supplementary Volume XIX, and reprinted in *Logic and Language* (ed. A. G. N. Flew), Blackwell, 1951, p. 128.

[4] This kind of position is held by Stephen Toulmin in *The Philosophy of Science*, Hutchinson's University Library, 1953, but his arguments are different from mine.

[5] When the pressure acting on a gas in the closed end of a U-tube is steadily increased, for example, the level of the mercury, which is a measure of the volume of the gas, will be seen to change steadily.

[6] The Principle of the Uniformity of Nature is not about the world, but about the sciences.

[7] See John Mackie, op. cit., p. 120.

[8] S. Glasstone: *Textbok of Physical Chemistry*, 2nd edit., Macmillan, 1946, p. 255.

[9] E. Schroedinger: "Are There Quantum Jumps? Part II", *The British Journal for the Philosophy of Science*, Vol. III, No. 11, p. 242.

[10] J. B. Thornton: "Scientific Entities I", *The Australasian Journal of Philosophy*, Vol. XXXI, No. 1, p. 2.

[11] J. B. Thornton: "Scientific Entities II", *The Australasian Journal of Philosophy*, Vol. XXXI, No. 2, p. 73 et seq.

[12] T. W. Chalmers: *Historic Researches, Chapters in the History of Physical and Chemical Discovery*, Morgan, London, 1949, p. 70.

[13] C. F. Powell: "Recent Discoveries of New Unstable Forms of Matter", *The Times Review of the Progress of Science*, Autumn, 1951, p. 9.

[14] J. B. Thornton: "Scientific Entities II", *The Australasian Journal of Philosophy*, Vol. XXXI, No. 2, p. 99.

THE POINT OF VIEW OF MORALITY[1]

By K. Baier

Philosophical scepticism is often due to and supported by arguments based on confused epistemological theories. Scepticism in ethics is no exception. Consider sceptical views such as these: that the answers to moral questions are the unsupportable deliverances of our moral sense or intuition or flair, deliverances which unfortunately vary from age to age, from class to class, and even from person to person; or that they are merely the expressions of personal tastes, opinions, feelings or attitudes; or that they are the announcements of personal decisions, affirmations, choices or proposals. Philosophers usually come to hold such sceptical views because they have had before their minds questions which are not genuinely moral or, when they were genuinely moral, because their investigations of the ways in which we ordinarily go about answering moral questions were comparatively superficial. Repelled by the transparent attempts of many moral philosophers to assimilate moral to well-known "safe" questions and answers, such as mathematical, ordinary empirical or means-ends questions and answers, the sceptics over-emphasize the obvious differences. Opposition to the "safe" models leads them to adopt or think in terms of well-known "unsafe" ones, such as questions and answers in matters of taste, matters of opinion, expressions of feelings and attitudes, and of decisions. The truth, however, is much more complicated.

Accordingly, I shall attempt to isolate one type of genuinely moral question and outline the appropriate procedure for answering it. It will then be seen that moral questions also have a "method of verification", although it is not the sort of empirical verification which in recent years has been taken as the only type deserving the name.

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[1] Abridged version of a paper read to the Annual Congress of the A.A.P.P. in Melbourne in August, 1953.

It will be granted that "What shall I do?" is sometimes a moral question. But obviously it is not the mere employment of these words themselves, not the form of the interrogative sentence in which they are employed, nor the ways in which these various employed words are severally used, that make it moral. This form of words constitutes a *moral* question only when it is *intended as* a moral question, i.e. when an answer of a certain sort is wanted, an answer that can stand up to certain complicated tests; in other words, when the questioner wants the person questioned first to consider and then to answer the question *from the point of view of morality.*

Let us be quite clear, in the first place, that not every question asked by means of these words is a moral question.

"What shall I do?" is not, for instance, a moral question when it is a request for instructions, as in the lieutenant's "What shall I do, Sir, shall I attack or wait for reinforcements?" This is not a moral question because the lieutenant, in asking for orders, is attempting to shift responsibility for what he is about to do on to his commanding officer. In moral cases, however, the agent himself is responsible for what he does. He cannot legitimately give the excuse "I acted on orders". Nor is it a moral question when asked by a pupil in the course of being taught. The learner wishing to know how to get on with his parking of the car, might ask the teacher, "What shall I do now?", but this is not necessarily a moral case either. When one asks for moral advice in a moral difficulty, one need not necessarily be a learner at all, not even a moral learner.

Nor is it a moral question when what one wants of the other person is that he should submit some suggestions or declare his own preferences in the matter, as when someone asks: "What shall I do? Shall I leave the key in the milk box or what?"

What, then, is it to ask a *moral* question by means of these words? We are nearer the typical case on those occasions when we are driven into raising this question by a practical problem which forces us to choose between alternative courses of action, as when I say "What shall I do? I must pay back. But there were no replies to my advertisement. So where can I get the money?" In such a case I can either answer my own question or I can seek guidance from other people. Both I myself and others must work out the answer by going through the process of deliberation. Everyone is in principle capable of deliberating on his own or on someone else's behalf. There is a symmetrical relation between the person who asks "What shall I do?" and the person whom he asks. Their roles might at any time be exchanged. There is no question of superordination or subordination. Both are surveying and weighing the considerations in favour of and against the possible alternatives. In asking for advice I am not necessarily asking for, and in giving it, I am not necessarily giving orders, instructions, or tuition. When I ask for advice I am asking the person to deliberate on my behalf, i.e. to survey the reasons or considerations relevant to the problem, though I am not necessarily asking him to *give* me these reasons. But I should think that he had not done what I asked him to do, if he had not surveyed and weighed the reasons, had not thought about my problem at all.

But not all advice, not all deliberation, is moral. It is only when I deliberate from the point of view of morality that my deliberation can be said to be moral. I am not considering the problem from this point of view unless I attempt to survey and weigh all the relevant moral considerations. I must here assume an understanding of what is by no means generally understood, namely, the nature of deliberation and of a consideration. All I have space to examine here are the questions, What is deliberation *from the point of view of morality*? and What are *moral* considerations?

Suppose I have wealthy relatives whose son wants a bicycle. Perhaps I could get the money I need by selling my bicycle to them. They would surely be prepared to pay a good price, for my bicycle is as good as new. It is an English racing bicycle and they know the boy would be very happy with it. The cost is of no importance to them.

So far, my deliberation was not from the point of view of morality at all, for I have merely asked myself whether the proposed line of conduct was likely to produce the effect desired. I cannot be said to have considered this question from the former point of view unless I ask myself whether there are *any moral objections to,* i.e. any moral considerations against my proposed line of conduct.

When would we say that there were such objections? There is a moral objection to a proposed line of conduct if it would constitute a breach of a moral rule. Determining whether a particular line of action does or does not constitute such a breach is a complicated business and we must not think that it can be done in one move. There are two main steps: first, finding out whether the contemplated act is forbidden, or incompatible with another act enjoined, by a moral rule of the agent's group; secondly, finding out whether this moral rule of the agent's group can stand up to the appropriate moral criticism.

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Our first question, then, is whether the planned line of conduct is forbidden by a moral rule of the group, and this involves the further question, when we would say of a rule that it belonged to the morality of a given group.

A few preliminary remarks about the nature of this question will help. A given rule which is part of the way of life of a certain group may belong to its law, its religion, or its mores, and if to the mores, then either to that part of the mores which we call its etiquette, or to its manners, or its fashions and so on. That a rule belongs to the law of the group can be ascertained by a comparatively precise method, namely, by ascertaining whether the rule is a valid part of its legal system. That it belongs to the religion of the group can usually be determined by finding out whether it is contained in any of the sacred books. On the other hand, that a given rule belongs to the mores of the group cannot be determined in any of these comparatively precise and specific ways. The most obvious method of finding out would seem to be to see whether the rule in question is supported by one or the other of the types of social pressure by which the various parts of the mores are supported. For instance, the rule will be said to belong to the manners of the group if the person on account of its breach is called ill-mannered, ill-bred, impolite, rude, or some such epithet, *and is treated accordingly.*

What we want to know is how we can characterize those rules which must be said to belong to the morality of the group.

Now, briefly, my answer to this question is as follows. For a rule to belong to the morality of a given group it is not necessary that, like the Decalogue, it should forbid or enjoin or permit a certain definite line of conduct or one or the other out of a definite range of conduct. What is necessary is rather that it should be: (i) part of the mores of the group, (ii) supported by the characteristically moral pressure, (iii) universally teachable and therefore universalizable, (iv) not merely a taboo, (v) applied in accordance with certain principles of exception and modification, (vi) applied in accordance with certain principles of application whose prevalence is a condition of the group being said to have a morality.

If a rule satisfies all these conditions, then it must be said to belong to the morality of the group in question, it is a moral rule *of* that group. I now proceed to discuss these points in detail.

(i) I shall simply assume, without much further argument, that the moral rules of a group belong to its mores and not to its law or religion. Moral rules of a group cannot be laid down, amended, abrogated, abolished. If a legislator were to attempt to do that, the rules he lays down would become part of the law. If the legislator is divine, the law is Divine Law. Of course, a legislator may not actually make new law, but merely declare law what is already existing custom. But then he has made law what was previously custom. And if he declares law what is a moral rule, then the moral rule has received legal backing. The same line of behaviour is now forbidden by a moral *and* by a legal rule. If it is morally wrong to break the law, then it is morally wrong to drive on the right, where the law forbids it. If it is morally wrong to disobey God, then it has been morally wrong to play tennis on Sunday ever since God prohibited it. In this sense only can the word of command or of law create moral rules. But no word of command or law can *create* the moral rule that it is morally wrong to break the law or disobey the word of God. A rule is part of the morality of a group in virtue of the moral convictions and pressures of the people of that group. A rule can become part of the morality of a group through propaganda, education, teaching, by hook or by crook, but not by word of command or law. A rule must become part of the living tradition of the group to become a moral rule *of* that group.

(ii) That a rule belongs to the mores of the group and not to its law or religion is not, however, sufficient. For it might still be merely a rule of etiquette or custom. Now it might be thought that all that was necessary was that the rule should be supported by the *specifically moral pressure.* If infringers of the rule are said to be immoral, wicked, wrongdoers, evil, morally bad, or some term implying one of these, and they are treated accordingly, then the rule is supported by the specifically moral pressure. Whatever may be the precise treatment meted out to those we think we rightly say are immoral, evil, wicked, etc., it is plain that we tend to condemn them, dissociate ourselves from them, perhaps would want to see them punished. Again, it is evidence that the rule is part of the morality of the group if rule-breakers feel guilty and experience remorse. It is evidence that the rule is not part of the group morality if group members feel merely regret or pleasure when infringing it. Finally, it is evidence that the rule belongs to the group morality if, on discovering that the rule is not part of the mores of another group, group members are shocked, outraged, indignant or horrified, and if they feel they must introduce this rule to the other group. Whereas, that they are quite unperturbed about this and don't feel driven to encourage them to adopt this rule, is evidence to the contrary.

Thus we can say that, although support of a rule by this sort of pressure is a necessary, it is not a sufficient condition of the rule belonging to the morality of the group.

(iii) A further condition which a rule must satisfy if it is to be said to belong to the morality of a given group, is that it must have been taught in a certain way. Three features of the teaching of moral rules are particularly important here. In the first place, moral rules must be taught to all children. Moral education is not the preserve of a certain privileged or oppressed caste or class within the group, nor of certain privileged or oppressed individuals. Secondly, children are made to understand that the breach of the moral rules is very serious and that infringers of moral rules are peculiarly reprehensible, horrible, and despicable. They are also taught that certain circumstances are extenuating and others aggravating and that in certain situations the rules need not be kept. They are taught that everyone is expected to observe them and that everyone will be treated in the same way when breaking or when observing these rules. Lastly, these rules are taught quite openly to everybody and taught in a way which makes it clear that one may be proud of observing these rules, of encouraging others to observe them and teach them to their children, of disapproving of others for not observing them or not teaching them to their children.

From this last point about universal teaching there follow certain principles, often called principles of universalizability, which exclude rules with a certain content from being part of the morality of any group whatever, since they could not be taught in the way in which rules must be capable of being taught if they are to be called moral rules. That this is so, shows that certain rules (logically) could not be said to be moral rules of a group. Hence it is not necessary to invoke any sort of moral intuition to "see" whether they are true or false moral rules. This question does not arise at all.

Notice that these rules are not self-contradictory, but that their content is such that no one who understands the nature of morality could rationally wish them to belong to the morality of any group.

(*a*) No one could wish a rule to belong to the morality of a group if the rule embodied a principle that was *self-frustrating*. For surely it must be possible for moral rules to be observed by all members of the group. Each member of the group might for instance wish to adopt the rule, When you are down ask for help, but don't ever help another man when he is down. But if all members of the group adopted this principle, then their adopting the second half of it would frustrate what is *obviously* the point of adopting the first half, namely, to *get* help when one is down. Such a principle is not, in itself, self-contradictory. Any one person may for himself consistently adopt it. But it is clearly a parasitic principle. It is useful to anyone only if many people act on the opposite principle.

(*b*) The same is true of self-defeating rules. A principle is self-defeating if its point is defeated as soon as its adoption by someone is revealed by him, e.g. the principle, Give a promise even when you know or think that you can never keep it, or when you don't intend to keep it. Now, the very point of giving promises is to reassure and give a guarantee to the promisee. Hence any remark that throws doubt on the sincerity of the promiser will defeat the purpose of making a promise. But clearly to *say* that one gives promises even when one knows or thinks one cannot, or when one does not intend to keep them, is to raise such doubts. And to say that one acts on the above principle is to imply that one may well give promises in these cases. Hence to reveal that one acts on this principle will tend to defeat one's own purpose.

But it has already been said that moral rules must be capable of being taught openly. Yet this rule is self-defeating if it is taught openly, for then everyone would be known to act on it. Hence it cannot belong to the morality of any group.

(*c*) Lastly, there are some rules which it is literally impossible to teach in the way the moral rules of a group must be capable of being taught, e.g. the rule "Always assert what you don't think to be the case". Such *morally impossible* rules differ from self-frustrating and self-defeating rules in that the latter could have been taught in this way, although it would have been quite senseless to do so, whereas the former literally cannot be so taught.

The reason why this rule cannot be taught thus is that the only possible case of acting on this principle, doing so secretly, is ruled out by the conditions of moral teaching.

(i) Consider first someone secretly adopting this principle. His remarks will almost always mislead people, for *he will be taken to be saying what he thinks true*, and in most cases what he thinks true will be true. Thus, it will usually be the case that p when he says "not-p", and that not-p when he says "p", whereas people will take it that p when he says "p", and that not-p when he says "not-p". Thus communication between him and other people breaks down, since they will almost always be misled by him whether he wishes to mislead them or not. The possibility of communication depends on the possibility of a speaker's ability *at will* to say either what he thinks to be the case or what he does not think to be the case. Our speaker cannot communicate because by his principle he is forced to mislead his hearers.

Thus, anyone secretly adopting the principle, Always assert what you don't think to be the case, cannot communicate with others since he is bound to mislead them whether he wants to or not. Hence he cannot possibly teach the principle to anybody. And if he were to teach the principle without having adopted it himself, then although he would be understood, yet those who adopted it would not. At any rate, since moral teaching involves teaching rules such as the taught may openly avow to be observing, this case is ruled out. A principle which is taught for secret acceptance only, cannot be embodied in a *moral* rule of the group.

(ii) Of course, people might soon come to realize what is the matter with our man. They may discover that in order not to be misled by what he says, they only have to substitute "p" for "not-p" and vice versa. But if they do this then they have interpreted his way of speaking, not as a reversal of the general presumption that one says what one thinks is the case (not the opposite), but as a change of the use of "not". In his language, it will be said, "not" has become an affirmation sign, negation being effected by omitting it. Thus, if communication is to be possible, we must interpret as a change in usage what is intended as the reversal of the presumption that every assertion conveys what the assertor believes to be the case.

Thus, if everyone were, by accident, to adopt simultaneously and secretly our principle "Always assert what you think is not the case", then, for some time at least, communication would be impossible. If, on the other hand, it were adopted openly, then communication would be possible, but only if the adoption of this principle is accompanied by a change in the use of "not" which completely cancels the effect of the adoption of the principle. In that case, however, it can hardly be said that the principle has been adopted.

(iii) However, the case we are considering is neither (i) nor (ii). We are considering the case of the open teaching of the principle, Always assert what you don't think is the case, for open acceptance by everybody, which is not to be interpreted as a change in the use of "not". But this is nonsense. We cannot all openly tell one another that we are always going to mislead one another in a certain way and insist that we must continue to be misled, though we know how we could avoid being misled.

Thus, this principle could not be embodied in a rule belonging to the morality of any group.

These points are of some general interest in that they clarify some valuable points contained in Kant's doctrine of the Categorical Imperative. In particular they clarify the expression "can will" contained in the formulation "Act so that thou *canst will* thy maxim to become a universal law of nature". "Canst will" in one sense means what I have called "morally possible". That is to say, your maxim must be a formula which is morally possible, i.e. which is logically capable of being a rule belonging to the morality of some group, as the maxim "Always lie" is not. No one *can* wish that maxim to be a rule of some morality. To say that one is wishing it, is to contradict oneself. One cannot wish it any more than one can wish that time should move backwards.

The second sense of "can will" is that in which no rational person can will certain things. Self-frustrating and self-defeating moral rules are not morally impossible, they are merely senseless. No rational person could wish such rules to become part of any morality. That is to say, anyone wishing that they should would thereby expose himself to the charge of irrationality, like the person who wishes that he should never attain his ends or that he should (for no reason at all) be plagued by rheumatic pains throughout his life.

But the points made also show the weakness of Kant's doctrine. For while it is true that someone who acts on the maxim "Always lie" acts on a morally impossible one, it is not true that every liar necessarily acts on that maxim. For if he acts on a principle at all, it may e.g. be, Lie when it is the only way to avoid harming someone, or Lie when it is helpful to you and harmful to no one else, or Lie when it is entertaining and harmless, and so on. Maxims such as these can, of course, be willed in either of the senses explained.

(iv) That the rule should be taught in the way explained is a necessary but not a sufficient condition of the rule belonging to the morality of the group.

Suppose that a group had the rule "Don't pick your teeth after a meal" and that this rule was taught in the way explained and supported by the typically moral pressure. But suppose also that, provided you crossed the fingers of your left hand, it was all right to pick your teeth after a meal. I think we would not say that such a rule belonged to the morality of that group.

The reason is not far to seek. We would not call this a rule of their morality, because it is merely a taboo. We do not allow it to be one of their moral rules, because they allow exemption on irrational grounds. Of course, one would have to examine their beliefs further to be sure that this was irrational. It would not necessarily be irrational if they also thought and offered some reason for thinking that crossing one's fingers when picking one's teeth appeased the deity who was incensed by the picking of one's teeth. We would not call a system of taboos a morality, not only because of the frequently odd contents of taboos, but also because of the mechanical and irrational nature of the ways in which members can gain exemption.

(v) It might be thought that I have given the wrong reason for saying that the taboos of a group cannot be moral rules of that group; I should not have said "exemptions on the wrong grounds" but just "exemptions". For it is sometimes held that moral rules do not allow of exceptions at all. "Fiat iustitia ruat caelum." Yet we do not regard a man who kills another in self-defence or executioners carrying out death-sentences as murderers or even as wrong-doers. Theirs are justified killings. That we so regard them indicates more precisely the way we apply the rule "Never kill a man" by showing us one or the other of its legitimate exceptions. That we so interpret it does not show, as beginners usually think, that we do not really believe killing is wrong or that we have contradictory moral convictions, but it shows that, to speak technically, we think killing *prima facie* wrong, wrong other things being equal, wrong in the absence of special justifying factors.

What, then, are the required principles of making exceptions to a moral rule? It has been held that one of the principles is that one must never make an exception in one's own favour. This has been interpreted (and very naturally) as meaning "Never make an exception to a moral rule when doing so would be in your own interest". But this cannot be right, for I am at least as justified in killing a man in my own defence as I am in killing one in someone else's. And often it is just as immoral to make an exception when this is in someone else's interest, e.g. my wife's, my son's or my nephew's. In fact, it is quite unimportant in itself in whose favour the exception operates, so long as it was made legitimately, and it is made legitimately in the case of self-defence. The truth contained in this view is simply this, that I must not make exceptions to a moral rule *on the principle* that I will depart from the rule *whenever and simply because* doing so is in my interest or, for that matter, in that of someone else whom I wish to favour.

Generally speaking, we can say that a man is not treating a rule as moral unless he makes exceptions to the rule only in those cases which are themselves provided for by the rules of the morality of the group; that is to say, in our case, when the killing was by the hangman, in self-defence, of an enemy in war, and perhaps in mercy killing. But this is only rough, for it is not the case that we allow the morality of the group itself to provide for exceptions in any sorts of cases whatever. We would not, for instance, be satisfied to say that the rule, Never kill a human being, did belong to the morality of a group, if the rule was supported by the moral pressure, and if the making of exceptions on the grounds of self-interest was also supported by the moral pressure, as when a man is condemned for not killing another whose fortune he would have acquired.

(vi) The question we are trying to answer, "When would we say that a given rule was a moral rule of a given group?" or "When would we say that a given rule belonged to the morality of a given group?", does, of course, presuppose that the group has a morality. For otherwise the question could not arise. On the other hand, having moral rules is one of the conditions of a group being said to have a morality. It might, therefore, be thought that the group needed only one rule of the right sort, say, Thou shalt not kill, or Thou shalt not lie, in order to be said to have a morality.

But I think this would be a mistake. We have already seen that for any such rule to be said to belong to the morality of the group, it must be supported by the right sort of pressure, be taught in the right sort of way, and be applied in accordance with certain principles of exception. But even this is not enough. We would not say of a group that it had a morality, even if it had one or several such rules and had all the practices already mentioned unless, in addition, it applied these rules in accordance with certain very general principles. Only if it did so apply some rules would we say that the group had a morality, and only those which were so applied would be said to belong to the morality of the group. The principles I have in mind might be called principles of *differentiation* and of *priority.*

The supreme principle of the application of moral rules is that in the absence of morally relevant differences between people moral rules must be applied to everyone alike. If a group is to be said to have a morality, it must have certain rules of differentiation, i.e. rules which lay down what are to be regarded by group members as morally relevant differences.

We would be inclined to say of a group that it had no morality if its rules of differentiation deviated more than a certain amount from the true principles of differentiation. Just what these true principles are and just what this maximum amount of deviation is, I cannot say now. All I can do at present is to indicate what are our rules of differentiation. (More about this below, page 132.) Notice also that one of the grounds on which we grade different moralities as less or more civilized, more or less primitive, less or more advanced, is the amount by which they depart from what we regard as the true principles of differentiation.

The most obvious grounds recognized by our morality for differentiating between different people are these:

(i) Breach of a moral rule by someone and consequent forfeiture of the protection of certain moral rules. Thus a man who without provocation is attempting to kill another man cannot claim the protection of the moral rule, Thou shalt not kill. If the other man, in self-defence, kills him, then the killer cannot be said to be a murderer, as he otherwise might have to be.

(ii) Special effort (greater than standard) and consequent moral claims to special consideration. Thus a man who has worked hard on a common project is entitled to a greater return from the common proceeds than one who has been idle.

(iii) Greater or less need (than standard) and consequently fewer or more tasks, duties, jobs, obligations. Thus, a man with a large family or one who has lost his eyesight is entitled to special consideration, partly because his need is greater and partly because certain duties would be more onerous for him than for others.

(iv) Special undertakings freely entered into and consequently special obligations to carry these out. Thus, a man who has a job as a social worker is not entitled to the gratitude and reward to which another is entitled, who does the same thing without having entered into any undertakings.

The supreme *principle of priority* lays it down that when two rules clash, i.e. when a person, by doing one thing, would be breaking one rule and by not doing it, breaking another, he ought to observe the more important rule and break the less important. Rules of priority of a given group provide guidance for the most likely clashes of moral rules.

Thus, when I know that by lying to his pursuers about his whereabouts I can save the life of an innocent man endangered by them, I am in the position of having either to lie or to help increase the danger to someone's life. In making a moral decision on this, I am guided by moral rules of priority. Our morality lays it down, I think, that we should lie in order not to endanger the innocent man's life, rather than vice versa.

If a morality had no rules at all for those cases in which two or more moral rules clash, if people sometimes acted in one way and then in another and felt no need for a uniform settlement, then one would be inclined to say that the group had no morality.

This completes my explanation of the first step in answering the moral question "What shall I do?" Suppose our agent has found, in this way, that his proposed course was not forbidden by any moral rule of the group nor incompatible with any course of action required by such a rule. He has then found a (preliminary) positive answer to his moral question. Speaking in this preliminary way, there are no moral objections to doing what he is proposing to do. He can go ahead. What he is proposing to do is morally all right, is not something he morally ought not to do. If, on the other hand, he finds that this line of action is contrary to a moral rule of the group, then he has found a (preliminary) negative answer.

II

No doubt many people never go further than this. They are like Plato's well-behaved auxiliaries in never challenging the authority of those who have taught them what is right and wrong. But if there is to be moral progress there must be at least some who subject the morality of their group to rational scrutiny and attempt to reform it where it is found wanting. The view that our morality *needs* no criticism because it is the word of God Who revealed it to us is as detrimental to moral advance as the view that there is *no point* in criticizing it because the juggernaut of history is inexorably pushing it forward in its predetermined grooves, anyway.

Let us then try to understand what such criticism of a morality comes to. Suppose our questioner finds that his proposed line of conduct is contrary to a rule of this group morality. Suppose also that he is not satisfied to accept uncritically the morality of his group. He will then go on to ask a question which he might formulate in these words, "Granted that our morality forbids this course of action, is our morality right in forbidding it?" We all understand this question. Most of us have sometimes asked it. We all admit that at least a few of our moral convictions may be misguided. Most of us now suspect that certain views on poverty and private property widely held in England in the eighteenth century were wrong, and also the nineteenth century views on sex.

What, then, does such a critically-minded person ask? What sort of doubt is he raising about the rules of his group morality? In what ways can the rules of a group morality go wrong?

Consider, to begin with, the analogous case of the expression "religious rule". It is well to remember that the two most important senses of "religious rule" are not parallel to the two main senses of "legal rule", namely, "law" and "lawful rule". There is no sense of "religious rule" which corresponds to "lawful rule". We would not say of the rule "Don't pick your teeth in public" that it was in any sense religious, just because it was not irreligious; although we would say that this rule was legal just because it was not illegal, i.e. was lawful. "Moral rule" is in this respect like "religious rule" and *not* like "legal rule". "Don't pick your teeth in public" would no more be called a moral rule (because in our society it is not considered immoral) than it would be called a religious rule (because it is not irreligious).

There is, however, a sense of "religious rule" which is parallel to "legal rule" in the sense of "law". I think it would not be seriously misleading for our purposes if we said that no system of beliefs and rules could be called a religion if it did not contain either supernatural beliefs or prescribed rites or rules of worship. If we know that a group has a certain religion, we can then tell whether a given rule of a group belongs to its religion or not. In the case, for instance, of the Christian religion, it is easy to tell that a rule is religious, namely, if it is contained in one of the sacred books.

Even so, there are rather different sorts of rule in the Holy Scriptures.

(i) Thou shalt not make unto thee any graven image or any likeness of anything that is in the heaven above, or that is in the earth beneath, or that is in the water under the earth.

(ii) But if the ox were wont to push with his horn in time past, and it hath been testified to his owner, and he hath not kept him in, but that he hath killed a man or a woman; the ox shall be stoned, and his owner also shall be put to death.

Both these rules are religious rules, in a sense corresponding to that which makes certain rules legal rules, i.e. laws: being part of the system. But we must now take notice that there is another sense of "religious rule" in which they are not both religious rules. Rule (ii) about the ox is not, in this sense, religious, whereas clearly rule (i) is. Religious Jews would not feel that they were sinning if they broke the rule concerning the ox, but they would do so if they broke rule (i), even though both these rules are held to have been revealed by God on Mount Sinai.

We thus distinguish between those rules which are, as I shall say, *genuinely religious,* and those which merely happen to be *part of the religion of the group.* We may similarly distinguish between those moral rules of the group which are *genuinely moral* and those which merely happen to be *part of the morality of the group.*

Let us make this distinction a little clearer. As we have seen, a rule will be said to belong to the morality of the group (provided the group has a morality), if it is treated in all the important respects in the way in which a genuinely moral rule ought to be treated: if it is taught in the way indicated, if it is applied in accordance with the moral principles of making exceptions, if it passes the universalization tests, if rule-breakers are dealt with in the specifically moral way, and perhaps some other things.

On the other hand, even if a rule does satisfy all these conditions, we may still have misgivings about it. Take the rule "Don't eat beans" or "Don't walk under ladders". Like the rules "Don't kill a human being" or "Don't lie", these rules might satisfy all the conditions necessary in order to be said to belong to the morality of some group. But even when they satisfy these conditions, we think that they *ought not to* belong to any morality. The first of these rules may perhaps have a place in a treatise on health foods, and the second is a mere superstition. They may belong to, but neither belongs *in* a morality. How, then, do we distinguish the genuine from the spurious, among the rules actually belonging to the morality of a group?

Let us remember that doing this is the task of a *critic* of a morality. Hence we need to lay bare the standards employed in this task. There seem to me to be four ways of getting at these standards. (*A*) In the first place, we already have some idea of what point of view we actually adopt when we perform this task. We only need to remind ourselves of it and make it explicit. (*B*) Secondly, we have the paradigms of genuinely moral rules, such as "Don't kill any human being", "Don't lie", "Don't be cruel". With regard to these rules we are more certain to be right than with regard to any other rules and principles. Hence an examination of the characteristics of these rules as opposed to obviously spurious ones, like "Don't eat beans", will help us to work out the principles by which we distinguish between genuinely moral and spurious rules. (*C*) Thirdly, we already have a fair idea of some of the principles we are using in this job. (*D*) Lastly, we have some idea of the relative merit of moralities as a whole. We already grade them as primitive and advanced, crude and civilized, lower and higher, and so on. But since these gradings of whole moralities depend, at least to some extent, on whether a morality contains fewer or more of the genuinely moral rules than of the spurious ones, this too helps us to arrive at the truth. Arriving at the truth in this matter consists in following up these beginnings, pressing as far as possible the various implications contained in them, and making them consistent and sensible.

Ad (*A*). I take the following to be the point of view which we adopt when we perform the task of a critic of a morality. I shall call it the point of view of morality. We are adopting it if we regard the rules belonging to the morality of the group as designed to regulate the behaviour of people all of whom are to be treated as equally important "centres" of cravings, impulses, desires, needs, aims, and aspirations; as people with ends of their own, all of which are entitled, *prima facie,* to be attained. (I take this to be the meaning of "treating them as ends in themselves and not merely as means to one's own ends".) The pursuits and wishes and ends of none of these goal-seekers are to be subordinated without special justification to those of any one or any group of them. From this point of view every one of these individuals is required to modify his impulsive behaviour, his endeavours, and his plans by observing certain rules, the genuinely moral rules. These forbid any individual's pursuit, even that of his own greatest good, if it is at the expense of the legitimate pursuits of others, at the same time indicating whose pursuit has to be abandoned in the case of conflicts (e.g. "Don't kill anyone except in self-defence, etc."); or they direct or admit him to the performance of certain ministrations to or by others because of his either being in a certain social position (teacher, soldier, etc.), or his finding himself in certain social relations to others (female dependant, beneficiary), or having inflicted certain things on others or suffered them at their hands (maiming, deceiving someone, etc.).

It is worth noting that this point of view differs from that of an Enlightened Egoist. The latter regards other people as complicated and subtle organisms who tend to compete with him for the good things in life but who, if properly handled, can be made to serve him the better to attain his own ends. An Enlightened Egoist must be and is prepared for other people to be similarly engaged in the pursuit of their own good and for each to subordinate the good of others to his own, i.e. to pursue his own good whenever possible, even to the detriment of others.

The job of a critic of morality may also be confused with that of some sort of ideal legislator. For both moral rules and laws are rules for members of groups, both in the ideal case applying to all members alike, both varying from group to group inasmuch as the exigencies of life, the technical means and the social arrangements vary, and both designed to protect each individual in the pursuit of his own good (made possible within the framework of his society) from any interference and abuse of the social devices by others. But while there are these similarities, there also are decisive differences.

There are a number of quite different jobs to be performed in the field of law and in the field of morality. In the field of law a man may perform the task of a legal critic, of a legal reformer, or of a legislator. The job of legal critic is to examine the legal system of his group and to ferret out weaknesses and devise improvements. It is not his job to publicize the weaknesses or to campaign for their removal. That is the job of the legal reformer. The task of the legislator is to create new law. He merely uses the existing machinery of legislation. The job of the critic is the invention of improvements, the job of the reformer is the preparation of public opinion, the job of the legislator is the setting in motion of the legal machinery.

In the field of morality there are only two comparable jobs, that of the critic of a morality and of the moral reformer. For reasons already mentioned there could not be the job of a moral legislator. When public opinion has been swayed, the morality of the group has already been changed. The group is then ready for legal changes, but the actual legal changes have yet to come. Legal authority rests with the legislator, moral authority with the public.

The critic's job differs from that of the reformer in being theoretical rather than practical. A thinker can criticize the law or the morality of the Ancients, he cannot reform it. The critic may consider all sorts of past, present or future possibilities, the reformer considers only immediate practical future possibilities. There is no doubt that the institution of slavery was a shortcoming of the morality of the Ancients. There is considerable doubt whether the abolition of slavery should have been on the programme of an ancient moral reformer.

There is a further important difference. Both the legal critic and the critic of morality may and should adopt the point of view of morality. But if the legal critic adopts it, he imposes on himself certain extraneous restrictions; if the critic of morality adopts it, he does not. If the legal critic does not adopt it, he may still be a legal critic; if the critic of morality does not adopt it, he cannot be a critic of morality. If the legal critic correctly criticizes law from the moral point of view, his criticisms will be morally justified, but they may be incompetent from the lawyers' point of view. If the critic of morality criticizes a morality from the point of view of morality, his criticism will be morally justified and that is all it needs to be.

It should now be clear what sort of a task it is to distinguish the genuine from the spurious among the rules actually belonging to the morality of a given group. It is the task of a critic of a morality. We all have this task in that, as moral beings, we are normally guided by the moral convictions of our group which we absorb in the course of our upbringing. It is our task as critics to examine this group morality, our task as moral reformers to attempt to bring about the removal of glaring inadequacies and needed improvements.

Ad (*B*). I have now completed my discussion of the point of view appropriate for a critic of the morality of his group. If my sketch of that point of view was accurate, it should enable us to say something about the principles governing the critic's work. In particular, if from the point of view of morality we look upon human beings as equally engaged in the pursuit of their legitimate interests, we would expect one of the principles by which we test group moralities to be this, that a genuine moral rule must be *for the good* of human beings. And since, from the point of view of morality, all are to be regarded equally, we would expect that the rules should *affect everyone alike.*

These points are confirmed independently, if we consider such paradigms of moral rules as Thou shalt not kill, Thou shalt not be cruel, Thou shalt not break promises, Thou shalt not lie. It certainly would seem to be for the good of all human beings alike that rules like these are part of the morality of groups.

Ad (*C*). This can be seen more clearly if we turn to our third way of getting at the standards employed, in criticizing an existing morality, namely, the consideration of the principles which we actually find ourselves using in this job. If we investigated what more exactly is meant by saying that the inclusion of a certain rule in the morality of a given group is for the good of human beings alike, by trying it out in a number of individual cases, we find that the application of this general principle tallies with our actual practice as critics of a morality. When would a rule be said to be *for the good* of human beings?

(*a*) In the first place, a rule must *not* be harmful. But it will be said to be harmful if (i) acting in accordance with it is harmful to the agent (e.g. "If your eye offends you, pluck it out"); (ii) one man's acting on it is harmful to many people, including the agent (e.g. "If you want to have a really pleasant drive, get drunk first"); (iii) one man's acting in accordance with it is harmful to others but not to the agent (e.g. "If you can get away with it, cheat in business");

(iv) everybody's or many people's, but not a single person's acting in accordance with it, is generally detrimental (e.g. "Turn on the current during the restricted hours").

A few words must be said in explanation of cases (i) and (iv). In both cases the tests are tests of *rules,* not of *particular acts.* (i) says that a rule requiring of people behaviour harmful to themselves is, other things being equal, not a genuinely moral rule even if it belongs to the morality of a group. But this must not be confused with the question whether a particular act harmful to the agent and known to him to be so, is morally wrong. Such an *act* would be morally wrong only if this sort of act, whether harmful or not, or if harming oneself in any manner whatsoever, were *contrary to* a genuine moral rule of that group. But this is the opposite of the case we are considering, namely, the case of a rule *enjoining* (not forbidding) what is harmful to the agent. A rule which forbids what is harmful to the agent may, of course, belong to the morality of a group.

It is characteristic e.g. of bourgeois morality that certain types of prudent behaviour are regarded as virtues (the observation of moral rules) and certain imprudent ones as vices (contrary to moral rules forbidding what is harmful to *oneself*), e.g. taking exercise, saving money, working hard, on the one hand, and smoking, drinking, neglecting one's health on the other. It is not clear whether these types of behaviour are so regarded because they tend to be harmful or useful, respectively, to the agent, or because they usually also tend to be harmful or useful *to others.* In my opinion, it is only if they really are harmful to others that these lines of action can rightly be regarded as vices.

An analogous distinction must be borne in mind when considering case (iv): there I have mentioned as reason for saying that a *rule* is not genuinely moral that everyone's or many people's acting in accordance with it would be generally detrimental. This too, is quite different from saying that *a particular line of conduct* is wrong because everyone's or many people's doing this sort of thing would be generally detrimental. In the notorious "landlady argument", "You can't use the iron just whenever you like, Miss Thompson; what if everybody were to do that!", the imaginary "universalization" does not test an existing moral rule—no one thinks of the rule, Use the iron whenever you like, as a rule of our morality—rather, it is supposed to be a test of a particular line of action. Let us be quite clear about the difference.

Suppose that there is a power shortage and that it is widely held that restrictions would be necessary if the supply is not to break down.

Take first the case of a society in which there are no regulations to cope with this. The legislator may then consider the imposition of restrictions on the use of electric appliances. Among *his* reasons for *introducing* this sort of legislation could be our argument in case (iv), namely, that if everybody or many people were to continue using these appliances at all times, the power supply would break down. If this is true, then it would be an excellent reason for introducing this piece of legislation and, unless there were reasons against doing so, the legislator would be to some extent to blame if he failed to do so.

In the absence of such legislation there would seem to be two possibilities: either the case is already covered by a moral rule of the group or it is not. In the first case it would clearly be morally wrong to use any electric appliances extensively. I am entitled to do so only if I have a special reason, as when I am ill and must have a radiator going continuously. In this case, if I really know that my turning on the radiator will not make any difference to the power supply, my justification for not observing the moral rule gains weight.

It may, of course, be difficult to decide whether the case is already covered by a rule or principle belonging to the morality of a given group. There is no doubt, for instance, that our morality does not contain the specific rule "Do not use electric appliances for more than an hour a day", although it does or did contain other similarly specific rules, such as "It is wrong for women to have careers of their own" or "It is wrong for young girls to use make-up". But it is not quite so obvious that our morality does not contain the rule "It is morally wrong to do that the doing of which by everyone or very many people (but not by one alone) would be harmful", which would cover our case. It may be said that we do have this rule because it is simply a specific case under the principle of fairness and we do have the principle of fairness, which in one of its forms runs as follows: "Take no unfair advantage, that is to say, no advantage which, in the circumstances, it would be harmful to grant to anyone and everyone". That our morality contains this principle can be seen from the fact that words like "shirking", "malingering", "not pulling one's weight" on the one hand and "taking more than one's fair share" on the other have negative "moral tone". It seems, therefore, reasonably certain that our morality contains the principle of fairness and that the general rule covering our example is a special application of it. If this is right, then it would be wrong by our moral standards to use the radiator in periods of known power shortage, whether or not there is a specific regulation prohibiting such use.

It would take too long to consider whether there could be moralities that contained no rules covering our case, and what we would say in such cases (if there were any) about the question whether, in the absence of specific legislation forbidding the use of radiators, it would be morally wrong to use them in times of known power shortage. All that can be said is that even if in such a society it could not be *shown* to be wrong, it would still *be* wrong, if it is true that the rule of fairness *ought* to belong to any morality whatsoever and if our case is covered by that rule.

But now consider the case where the appropriate legislation has already been introduced. Then it is (*prima facie*) morally wrong to infringe this legislation, since any *bona fide* law or regulation has the moral backing. One may argue with the legislator about the need for such regulations, but as a citizen one must obey them while they are in force. The reason for this is not that if everyone used his radiator the power supply would break down, but simply that there is a *bona fide* regulation against it. A citizen can, of course, agitate for the repeal of any piece of legislation, but until then he must (other things being equal) obey them, whether he thinks them necessary or unnecessary, good or bad laws.

It is, therefore, simply irrelevant to this issue that my own use of the radiator will make little or no difference. It is wrong to turn it on, even if I know that, because everybody else is law-abiding, no one else will do so and that, therefore, my doing so will make no difference. It is wrong to turn it on even if I know that everybody else will do so and that, therefore, the power supply will break down anyway. I have an excuse for breaking the regulation, if I have a special overriding ground for doing so, as when I am ill and must have warmth, but even then I should try to get a permit to do so. Here again my knowledge (if I know) that my turning on the radiator will make no difference, gives added force to my excuse for breaking the regulations.

Of course, all this holds only for valid *bona fide* laws and regulations. That a law or regulation is valid is determined by legal tests; that it is *bona fide* is not a legal matter. If a law enjoins what is known to be immoral because contrary to a moral principle of the group, then the law is not *bona fide*. In this case it is morally wrong to obey the law unless the consequences of disobeying it are morally worse than the consequences of obeying it. If, on the other hand, a law is wilfully unnecessary, i.e. such that everyone can see plainly that the law is unnecessary, as would be the case with the possible law "No women must smoke in the street" or "No New Australians must be served intoxicating liquor", then neither obeying it nor disobeying it while trying to avoid being caught is morally wrong. But this applies only to plainly wilfully unnecessary laws or plain chicaneries. If a law is in fact unnecessary, but it is still a highly disputable question whether it is unnecessary or if it is unnecessary, but not at all plainly so, then the law must be regarded as *bona fide* and, therefore, as morally binding.

(*b*) A further condition that must be satisfied if a rule is to be said to be for the good of human beings is that it must not impose any *unnecessary restrictions.* "Don't eat beans" is a rule which is unsuitable for inclusion on this score.

(*c*) Lastly, a rule is for the good of human beings if it promotes the good of some people, provided it does not violate any of the other conditions, especially of unjustifiably and necessarily harming or tending to harm some people. "Be kind to others", "Give to charity", "Be generous", "Help your aged parents" and so on belong in this group.

Here again, the difference between the justification of individual acts and of rules should be noted. It is wrong not to look after one's aged parents because there is in our morality a rule to that effect, and this rule is rightly part of our morality because it promotes the good of certain people and prevents harm to which they are exposed in the special conditions of our society. If the aged were cared for by the state and the rule ceased to be part of our morality, then it would no longer be morally wrong not to assist one's aged parents, although it might still not be wrong or might even be meritorious to do so.

On the other hand, it is not morally wrong not to be generous because no rule of our morality makes generosity compulsory. Generosity is merely meritorious. Or rather, we mean by "generosity" that amount of assistance to others which goes beyond that which is compulsory. As our moral and economic standards rise, more and more in the way of mutual assistance is required of us as a matter of course. Generosity and charity begin after that.

Ad (*D*). We can now turn to our last approach towards the standards of criticism of a morality: the grading of various different moralities. We say of some moralities that they are higher or lower, more or less advanced, more or less primitive or civilized, more or less developed or evolved than others. What are the standards in accordance with which we grade these?

The most obvious method of weighing moralities is according to the proportion of genuine over spurious moral rules. This is not a matter of mere counting, for some rules are more important than others: the rule "Don't kill any human being" is much more important than the rule "Don't be grumpy".

But there are other methods. We have seen above (p. 117) that a group in order to be clearly said to have a morality must have rules governing the making of exceptions to moral rules. We have distinguished above two sets of such rules, those concerning discrimination between different sets of people, and those governing conflicts between moral rules. We have mentioned the most obvious such rules of our morality, but have said nothing about what are the correct principles that should govern them. For obviously it is particularly in these fields that one morality differs from another. Racial theories, class and caste systems, nationalism, and so on are phenomena in which differences of rules of discrimination play an important part.

Take first the rules of discrimination. These are based on one basic principle, that of non-discrimination, i.e., the principle that all rules *qua* moral apply to everyone alike. That is to say, a moral rule must not discriminate between people, i.e. differentiate between them on morally irrelevant grounds, where a morally relevant ground of differentiation is one which reveals differences of moral desert. The system of these grounds of differentiation rests on the principle of equality, that to begin with, all other things being equal, i.e. unless there are some specific grounds for differentiation, all moral rules must, therefore, be equally applied to all.

But what can we say are the *correct* principles in accordance with which a group *should* recognize grounds of differentiation? I think we can say that those are correct which themselves satisfy all the tests which a genuine moral rule must satisfy.

We do, for instance, distinguish between parents and others in respect of what they owe their children because we think it *for the good of human beings* that someone in particular should have the responsibility for the care of the young and we think it most natural and, in our social set-up, best that the parents should have this responsibility.

The same thing is true, *mutatis mutandis,* of the rules of priority. These, too, must pass all the tests for genuine moral rules. If they pass these tests, then they are not merely rules of priority belonging to our group morality, but genuine rules of moral priority.

One more point in this connection. We have seen reason to think that if a group did not have any rules of differentiation or priority or if those it had were totally different from, perhaps contrary to the best ones, we would have reason to doubt whether the group in question had a morality at all. On the other hand, it is not necessary that these rules of discrimination and priority should be exactly in accordance with the best ones. Here there is the possibility of a gradual approximation to the ideal. It has often been pointed out that in the history of mankind we find a gradual extension of the application of rules of morality first to ever larger groups and then to people outside any particular group. Christianity, by the introduction of the notion of Equality in the eyes of God, All men being the children of God, All men being brothers, and so on, has contributed much to this spread. But we do not deny that a group has a morality simply because it does not extend the application of its moral rules equally to everyone.

We can thus say that there are certain minimal requirements which must be fulfilled if the group is to be said to have a morality at all. If these are fulfilled, we speak of varying degrees of perfection of a morality, depending on the degree of approximation to a certain ideal.

This completes the answer to our main question. We have seen that "What shall I do?" is a moral question if and only if it is asked with a view to getting an answer that can stand up to certain complicated tests. We have seen what these tests are. We make sure first that the proposed course of action is not contrary to a moral rule of the agent's group, and secondly that, if it is, this rule is not a genuine moral rule. Concerning the first step, we have seen that every member of a group that can be said to have a morality is taught the rules belonging to that morality. I have mentioned tests for telling whether a given rule does or does not belong to the morality of one's group, and tests for telling whether a rule is genuinely moral. With this information it is possible to answer the moral question "What shall I do?" One has to rely on one's moral education for supplying the first answer to whether or not a proposed line of conduct is contrary to a moral rule of the group. If one has found a rule which one has been taught as a moral rule of the group and to which the proposed line of conduct is contrary, then one can, by applying the tests I have mentioned, make sure whether it is *really wrong*. It is really morally wrong if it is contrary to a rule which is really a rule belonging to the morality of the group and which is also genuinely moral. I have said nothing about the more difficult cases when the line of conduct is contrary to a moral rule belonging to the group which is not genuinely moral (e.g. "No sports on Sundays"), and the case when it is contrary to a genuinely moral rule which is not part of the morality of the agent's group (e.g. "Don't discriminate against Jews").

Finally, it should be noticed that "What shall I do?" is a moral question asked by a particular agent belonging to a particular group, and cannot be answered *in abstracto*. On the other hand, the critical testing of moralities is done by means of standards and against principles which are not tied to any group. "What shall I do?", when it is a moral question, is asked from within a culture, but it involves the asking and answering of questions which would be the same in any culture context whatsoever. But this does not mean that these questions would receive the same answers in every culture context. "Parents, not the State, must look after children" may be a genuinely moral rule in one society but not in another, although the principles in accordance with which this is settled are the same in both cases.

How simple-minded it is to look for the one feature that marks off *the* moral judgment or utterance from other sorts. The moral agent asks moral questions and answers them with a view to doing something. The moral critic asks and answers the question whether a particular agent has acted in accordance with or contrary to the moral rules of his society, with a view to judging his moral merit. The critic of a morality, on the other hand, asks and answers the question whether any of its rules are spurious, or whether any genuine moral rules are missing, or perhaps whether this morality is more or less advanced or civilized than certain others. The moral reformer "sees" that certain rules belonging to the morality of his group are not genuinely moral rules, or that certain rules which would be genuinely moral rules, if they were part, are not part of the morality of his group, and advocates the necessary reform. Here "intuition" is the proper word to use.

But while all these people busy with all these different tasks are employing moral terms, moral arguments, and moral reasons, while they all engage in moral talk, it is surely absurd to think that they are all uttering quasi-imperatives or are all expressing or arousing specific emotions or attitudes or feelings, or that they are all trying to persuade someone to change his attitndes, or to give him moral advice, or pass moral judgment on him. Surely, they are sometimes doing one, sometimes another of these things.

REVIEW ARTICLE

THE PHILOSOPHY OF JOHN WISDOM (I)

By D. A. T. Gasking

Other Minds. By John Wisdom, 1952. Basil Blackwell, Oxford.

Philosophy and Psycho-Analysis. By John Wisdom, 1953. Basil Blackwell, Oxford.

In these two books are collected some of the most important and exciting papers published in the last twenty years. Every philosopher should have them in his shelves, and few could fail to profit by an occasional rereading of them. *Other Minds* contains the eight papers under that title from *Mind,* 1940-1946, with four related papers. Its main theme is what Wisdom once described as the "worst of all" (99)[1] philosophical problems, that of the relation between psychological and behavioural sentences. It also has important things to say on the nature of scientific theories, explanation, analogy, induction, knowledge and the nature of philosophy. *Philosophy and Psycho-Analysis* contains Wisdom's other papers from 1934 on. It has discussions of knowledge, logical analysis, the verification principle, mathematics, and the similarities between philosophical and psycho-analysis. But the main theme is perhaps: "What is a philosophical question?"

Other Minds is well worth reading (or rereading) in order to find out (or remind oneself) what it is like to try to grapple really thoroughly with one problem. From the two books together one can, I think, learn two main things. First, one can learn a lot about the nature of philosophical issues, and how they differ from other sorts of issues. Secondly, the books constitute an excellent (if somewhat unsystematic) compendium of what is sometimes called "the logic of language" to distinguish it from formal logic (whether Aristotelian or Russellian). From the detailed contrasting of philosophical with other questions one can learn a lot of "logic" in that sense of the word in which Wisdom writes: ". . . the logic of the soul, that is . . . the way questions about the soul are settled" (278). Many use the techniques of "logical analysis", though few so skilfully as Wisdom. But Wisdom is unrivalled at letting you behind the scenes in the philosophical workshop.

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[1] Numbers in parentheses, e.g. "(99)", are page references to *Philosophy and Psycho-Analysis*. Numbers prefixed by "M", e.g. "(M170)", are page references to *Other Minds*.

But Wisdom's remarks on any one point are liable to be scattered through several papers, and his conversational style and use of dialogue, although it has considerable virtue, also tends to have the corresponding defect of making it hard to grasp the main outlines of what he wants to say. I shall therefore try to summarize what I take to be some of the main points he makes.

(1) *Empirical questions, questions of strict logic, conflict questions, and paradoxical questions.*

(*a*) A typical empirical or "betting" issue would be the dispute "Is this inflammable?" where you say No and I say Yes, and where we both agree that the way to settle it would be to put a match to it and watch what happens, and where we moreover both agree, concerning every imaginable outcome of the experiment, in whose favour that outcome would settle the matter.

(*b*) Besides using "logic" in the wide sense, as in "the logic of the soul", Wisdom very often uses the word in a much narrower sense, which I shall distinguish as "strict logic". An issue is one of "strict logic" if it can be definitely settled by showing that there is a generally accepted and fixed usage of some expression (M26). It is, for instance, a point of strict logic that " '326 × 3 = 988' is not a rule" (115). For it is correct usage to say that '326 × 3 = 988' is false, and it is not correct usage to call a "rule" that which one could properly describe as true or as false. Or again (M139) "It is nowadays logically impossible for both a standard-bred trotter and his parents to fail to trot a mile in 2 minutes 30 seconds. But this wasn't always so. This bit of logic was made quite recently in America. For a standard-bred trotter was defined as a horse 'with a record of 2·30 or less or whose parents have a record of 2·30 or less'." It is a point of strict logic that if this bursts into flames and rapidly burns to a fine ash after a match is put to it then it is inflammable.

(*c*) Questions of the two previous sorts are straightforward; they have in principle a definite yes-or-no answer. Conflict questions do not. They call for a decision, rather than the finding of the right answer, since, although in some respects they resemble questions of strict logic, there is no settled linguistic convention to decide the answer (M26). Wisdom gives as an example (95): "If when a dog attacks her, a cow keeps her horns always towards him, so that she rotates as fast as he revolves, does he go round her?" Here, when we have rehearsed all the considerations in favour of the answer Yes, and all those in favour of No, we are in the position of a judge who, having heard opposing counsel state their cases on a tricky point of law on which there is no clear precedent, has to make the law. There is no settled linguistic convention governing this case. Some would hesitatingly say Yes, some give a doubtful No, and most would not feel that they could give either answer. So if we insist on giving an answer to the question we must make a convention for ourselves. And if someone decides on a different answer—prefers to adopt a different convention—we cannot say that in strict logic he is wrong. Compare "Can one keep a promise unintentionally?" (M33).

(*d*) Sometimes a person asks a question which, regarded as a question of strict logic, has a definite and pretty obvious answer. The questioner knows this answer perfectly well and in spite of this persists in asking the question. And sometimes to such a question an answer is given which, in strict logic, is false. The speaker knows this perfectly well but nevertheless persists with his statement. He gives a paradoxical answer to a paradoxical question. For instance, the word "mad" correctly applies only to people who think, feel and behave in certain rather uncommon ways: it would be a misuse of this word to apply it to people whose ways of thinking, feeling and behaving were like yours or mine. That is, as a matter of strict logic it is false that we are all mad. But one who knows this perfectly well may nevertheless say "Aren't we all mad, really?" (M27 ff.). Such a person is "suggesting a logical reform". He "wishes to draw the line less sharply between the mad and the sane". Philosophers' remarks of this sort are (41): "We can never know the causes of our sensations", "Inductive conclusions are never really justified", "The laws of mathematics are really rules of grammar". Such remarks are tantamount to suggestions such as: "Let us agree to apply the word 'mad' also to people who behave like you or me", "Let us use 'rule of grammar' in such a wide sense that it shall apply to laws of mathematics as well as to what is to be found in grammar-books". The maker of such a remark may be unaware, or not clearly aware, that this is what his remark comes to. To that extent he may be confused. Moreover, if his notational reforms were adopted something would be lost. There is a difference between those ordinarily called "mad" and those ordinarily called "sane", and one between laws of mathematics and what one ordinarily calls "rules of grammar". These differences our unreformed language records by having pairs of contrasting expressions. If we adopted this new way of talking we should have only one expression, "mad", to cover both those inside mental hospitals and those outside, and one expression, "rules of grammar", for both the contents of a Spanish Grammar and those of Hardy's *Pure Mathematics*. And this would tend to make us lose sight of the differences. But the suggested reforms would have merits too. They are also "symptoms of linguistic penetration" (41). For there are similarities and continuities, which such paradoxical remarks bring out, between the mad and the sane and between grammar rules and mathematical laws.

Questions of strict logic, conflict questions, and paradoxical questions have something in common that distinguishes them from empirical ones. They could all be called *a priori* (cf. M20; 148) for they are either requests to be told what the existing linguistic convention is, or requests for one to be made where it does not exist, or concealed suggestions for a change in the convention. Conflict questions and paradoxical questions have something in common which distinguishes them from the straightforward empirical questions and questions of strict logic. They could both be called "puzzle questions". They are requests or suggestions for the making of a new convention, either to replace an existing one or to fill in a gap.

(2) *The interpenetration of different types of issue.*

The different types of question are not always in practice sharply cut off from each other. There can be questions on the borderline between two types and debates centring round a single interrogative sentence, and so ostensibly about a single issue, where in fact issues of different types are mixed up together.

(*a*) The question "Is S P?" is clearly one of strict logic if there is a settled linguistic convention, if there is an established and definite custom of calling something "P" in virtue of its possessing the characteristic of being an S. If such a custom is entirely lacking the question is clearly a conflict question. But the definiteness of the custom is a matter of degree. It may be more or less universally followed with less or more hesitation. So between the two clear-cut cases there is a range of intermediate cases. "The more indefinite custom is, the less is the question a matter of logic and the more it calls for a decision" (M26).

(*b*) If you and I are debating a question in relation to which certain possible tests or observations have not yet been made, we may be disagreeing in either or both of two different ways. We may have different expectations about the outcome of the yet unmade tests. Or the difference between us may be that I say that if the outcome of the tests were to be such and such that would make it proper to answer our question by saying "so and so", whereas you deny this and say that if the outcome were as envisaged it would then be proper to say something different. If the difference between us is of the former sort only our dispute is purely empirical. If our difference is only of the second sort it is purely *a priori,* perhaps one of strict logic, perhaps a conflict case, or perhaps intermediate in character. But in a given dispute we may differ in both these ways at once. And then the debate will be partly empirical, partly *a priori.* "When one doctor disputes with another as to whether a child who coughs and vomits but doesn't whoop has whooping cough, the source of the dispute is largely a matter of whether one should, in view of the absence of a whoop, speak of whooping cough. This is an *a priori* issue. But that there is this *a priori* difference . . . is obscured by the fact that the dispute probably also *in part* arises from different expectations as to the course the illness will take and how it will respond to this treatment or that . . . (and) by the fact that . . . 'It is whooping cough', 'It isn't', always can at any stage in the dispute be used to express an empirical dispute, since it is quite true that there always remains some uncarried out test, with the consequence that it is always possible to pretend that it was an empirical issue one had in mind in raising the question" (M25).

Or take, for instance, a debate on the question: "Can one ever know what is going on in the mind of another in the same sort of way that one knows what is going on in one's own mind?" For part of the time at least in such a debate the discussion may be on whether certain imaginable phenomena, of a sort we should probably call "telepathic", occur or not, e.g. "Does it ever happen that Smith by feelings like his normal feelings of jealousy, anger, pain and so on can tell whether or not Jones is having feelings of jealousy, anger and pain?" I may think that one day one might actually come across cases of this sort; you may have no such expectations. This might be the only difference between us, and we might agree that if such phenomena were to be encountered they would prove that the answer to our question was Yes and that if they never happened the answer would be No. If so, our difference would be purely empirical. On the other hand we might agree in expecting or in not expecting ever to find such phenomena, but disagree in that you thought that such phenomena, if they occurred, would prove that the answer was Yes, whereas I thought they would not prove this. If so, our dispute would be purely *a priori*. But in any actual debate we might easily discover that our differences were of both sorts, e.g. You might expect the phenomena but think that they didn't prove the case: I might not expect the phenomena but think that if they were to occur they would prove the case.

The course of such a debate can sometimes be described by saying that the question was at first an empirical one and later turned into an *a priori* one. For a person may start by contending that the answer is No, offering as his reason that the phenomena in question do not occur. If so, it looks as though he is assuming as an *a priori* truth that the occurrence of the phenomena would make it proper to answer Yes, so that the only issue is the empirical one "Do the phenomena occur or not?" But later, after the alleged phenomena have been carefully described and their bearing on the question critically examined, and especially if it has been meanwhile established that such phenomena do occur, he may still defend the answer No, but now give the *a priori* reason that such phenomena, even if they occur, would not prove the case. Here one is inclined to say that he has shifted his ground. At first he defended the empirical thesis that such phenomena do not occur; now he defends the *a priori* thesis that such phenomena do not make Yes the proper answer. The question under debate has changed from empirical to *a priori*. At first the question meant: "Assuming that such phenomena would prove the case, do they occur?", and later it came to mean: "Would any imaginable phenomena prove the case?" But there may, in a given case, also be grounds for saying that, even though he gives reasons in the way described, he has not really changed his ground; that all along he meant the question in the second way. Perhaps he expressed himself carelessly or maybe he wasn't quite clear himself as to what he did mean. In a given case we may be asking a conflict-question if we ask: "Did he change his ground, or did he all along really mean the same thing, even though perhaps obscurely at first?" (on all this see M126-129).

(*c*) The man who makes a paradoxical remark like "Aren't we all mad, really?" is making a notational recommendation. His remark is *a priori* not empirical. But he may (or may not) be prompted to suggest this new way of talking by empirical considerations. He may for instance expect to find more similarities and continuities between the mad and the sane than most people expect to find, and feel that these similarities and continuities he expects to find would make his way of talking an appropriate one. And, indeed, if his expectations are right and those of the rest of us are wrong, his new way of talking would be less inappropriate than if his expectations were wrong and ours right (cf. M29).

Moreover, our actual standard linguistic conventions—the laws of strict logic—are not in every way independent of what the world is like, what sorts of things there are and how they resemble and differ from each other. But the connection is a loose one. Empirical considerations may make it desirable for us to have one standard convention for the use of certain expressions rather than a different standard convention, if we are to have a system of language which is an efficient instrument with which to describe the world. But the nature of things does not force us to have one possible standard convention rather than another, except in the sense that natural selection will see to it that those with the most efficient instrument of communication will survive. A convention is a convention: it might be silly, but it could not properly be described as false or as incorrect. "There are no doubt some cows which are more like horses than others but upon the whole the animals which we actually come across fall very definitely under one or other of the animal names in our vocabulary and the law 'If it's a cow it can't be a horse' serves us well. But if Nature were to begin to produce beasts as much like cows as horses, as much like dogs as cats, our language would begin to break down again and again and the law 'If it's a cow it can't be a horse', though it would not become false, would become as much a menace as a help" (277 n.).

(3) *Changing views on the nature of philosophy.*

Twice in the last half-century or so a new conception of the nature of philosophical problems has come into vogue in advanced circles. Once upon a time (stage one) philosophical problems were thought to be of essentially the same nature as scientific ones, only perhaps more general. (It was not, I think, that people had clearly in mind the distinction between the different types of question explained in section (1), and thought that philosophical questions were best classified along with scientific ones under the heading "empirical". It was rather that they had not clearly grasped that there are these different types of question, and so, having only one heading for classification, naturally put into it philosophical problems alongside scientific ones.) Then (stage two) about the beginning of this century, when the distinction between empirical questions and those of strict logic became fully clear, a new conception came in. Philosophical problems came to be regarded as not empirical, like scientific ones, but questions of strict logic. "As science grew and people saw better how it is based on observation and experiment there grew a suspicion of anyone who professed to have obtained new factual information by anything but empirical methods. There were sneers at the philosophers . . . . To this situation came Moore and Russell . . . they revolutionised philosophy for many of us by reinterpreting the philosophers' 'What is an X?' as a request for logical analysis" (59).

The key notion in this era was that of a logical construction. Wisdom explains it thus: "One of the best ways of saying that a material thing is a logical construction out of its appearances . . . sense-data . . . or what not, is to say that a material thing is to these as the average plumber to plumbers, as a nation to its nationals, as energy to its manifestations, as the representative firm to firms, and *not* as a political representative to those he represents, not as an original to its copies, not as a mechanism beneath a bonnet to its manifestations, not as a sheep to shadows in the grass" (233). This was an advance. "When Russell said that the realities we speak of are not guessed at from appearances but are logical constructions out of them and therefore follow deductively from them he substituted for an old and muddling model of the connection between realities and appearances a new model" (205). Statements about logical constructions purport to be ones of strict logic. For it is a point of strict logic that "The height of the average plumber is 5′ 6″ " follows deductively from and entails "The sum of the heights of all plumbers divided by their number equals 5′ 6″ ". And the problem of e.g. material objects was supposed to be that of finding a similar statement of strict logic, connecting e.g. "There is cheese here" with some complicated statement about sense-data, in the way that the statement about the average plumber is connected with a statement about plumbers. The latter statement was then to be called the "logical analysis" of the former.

It was an optimistic movement, convinced that it had finally got the key conception which was to solve all philosophical problems, and Wisdom himself, in the early days, participated fully in it. "Mounted on logical constructions philosophers of the 'twenties were able to cut exhilarating but confusing capers round about their less up-to-date contemporaries. Logical constructions enabled philosophers to ride down the dragons of mythology, to come up with the elusive 'beings for thought'. No wonder they asked 'What price now they'll catch the creatures of noumenal, supersensible worlds of matter, mind, value, and necessity' " (205). Wisdom's series of *Mind* articles on "Logical Constructions" are not reprinted. But the first two papers reprinted in *Philosophy and Psycho-Analysis* belong roughly to this period. "To philosophize is to analyze", he there (3) roundly says. "The philosopher's statement is verbal."

Then (stage three) in the 'thirties another conception of the nature of philosophical problems came in, different from either of the previous ones, although the conception of stage two was a perhaps indispensable half-way house on the way to the third conception. This new idea was largely due to Wittgenstein, under whom Wisdom studied, and by whom he was converted. The papers on "Philosophical Perplexity" and "Metaphysics and Verification" are the first publications of the new convert, and in them Wisdom tries to expound the new view and to argue against the notion of philosophy as strict logic which he previously had. The same is true of "Philosophy, Anxiety and Novelty", perhaps the best short summary of Wisdom's whole position.

According to this third conception of philosophy philosophical remarks are neither empirical nor ones of strict logic but either (*a*) the answers to conflict questions or (*b*) paradoxical answers to paradoxical questions. Presumably these days, too, they may be remarks designed to elucidate the paradoxical or conflict character of questions.

(*a*) Wisdom had previously said, firmly, "The philosopher's statement is verbal" (3) as if this were a truth of strict logic. In "Philosophical Perplexity" he now regards the question "Are they verbal or not?" as a conflict-question like "Did the dog go round the cow?" Accordingly he starts his paper with "Philosophical statements are really verbal" (36), and then starts the second section of the paper with: "I have said that philosophers' questions and theories are really verbal. But if you like we will not say this or we will say also the contradictory." In his next article Wisdom considers the question: "Given such a sentence as 'There is cheese here' does this mean the same as any string of sentences about what we should see if we looked, smell if we sniffed, etc.? Is there any sensation-sentence which means the same, expresses the same proposition as, stands for the same fact as the cheese-sentence?" Of this question he says that the proper answer is: "You are not asking anything about cheeses [i.e. not an empirical question][3] . . . what is more, you are not asking what would be said here nor what the language experts would say [i.e. not a question of strict logic]. What you are asking for is a decision and the reasons for it *in the sense in which reasons can be offered for a decision*—by counsel for the plaintiff and counsel for the defendant" (97).

(*b*) A paradoxical question is one the answer to which, if it is regarded as a question of strict logic, is obvious and known to the questioner, who in asking it is not therefore requesting information on a point of strict logic. Answers to such questions will be from the point of view of strict logic either obvious falsehoods or obvious truisms.

"We are all mad really" is an example of such a strict-logical falsehood, whose point has already been explained. Examples of philosophical remarks that have this character are: "A proposition is a sentence" (39); "The laws of mathematics and logic are really rules of grammar" (48). Since in fact the word "proposition" is not synonymous with "sentence", and we would violate an established linguistic usage if we called "326 × 3 = 988" a "rule of grammar" we may if we like call these remarks "certainly false". And yet "to leave one's criticism at that is to attend to the letter and not the spirit of the theory criticised". Such a procedure would be "legalistic" (116). For it would miss the point of such a remark, which is not to put forward the false thesis of strict logic but, by suggesting a reform of language, to underline continuities and similarities that ordinary language conceals. Such a remark may thus be "metaphysically" illuminating in drawing attention to what is ordinarily overlooked. For instance the strict-logical falsehood about laws of mathematics and logic has the merit of drawing attention to "(1) an unlikeness and (2) a likeness concealed by ordinary language; (1) an unlikeness to the laws of hydraulics and an unlikeness in this unlikeness to the unlikeness between the laws of hydraulics and those of aeronautics; for it is an unlikeness not of subject-matter but of manner of functioning—and (2) a likeness but not an exact likeness to the functioning of rules".

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[3] Square brackets indicate my interpolations.

An answer which, from the point of view of strict logic, is a truism does not have this sort of merit. It may, in certain contexts, do good. When said in opposition to a paradoxical remark it may serve as a timely reminder that such a remark is, after all, a strict-logical falsehood. "It stops over glibness, it forces us to realize that 'there's more to it than that' " (116). But often remarks that are, from the point of view of strict logic, impeccable may be "metaphysically" useless or misleading. This is especially likely to be so if the answer is "made to measure" (50) as an answer to the question. Consider for instance: "Propositions about numbers, universals or propositions are about what is objective, real and possible, but non-sensible, neither subjective nor palpable and spatial. These objects do not exist but they subsist". About this Wisdom remarks (84): "These theories are perfectly correct. They could not be otherwise since they proceed along the lines: The peculiarity of facts about classes, numbers, propositions and characteristics is that they are about *subsistent entities*. What are subsistent entities? Well, they are not chairs and tables. Indeed they are not known by the senses but by the intellect. Characteristics, for example, are subsistent entities, so are propositions, numbers and classes." To give another example of something "made to measure", which cannot therefore be faulted in strict logic: "Suppose the word 'sense-datum' has never been used before and that someone says 'When Jones sees a rabbit, has an illusion of a rabbit, has an hallucination of a rabbit, dreams of a rabbit, he has a sense-datum of a rabbit'. One cannot protest that this is false, since no statement has been made, only a recommendation" (39).

Such made-to-measure answers to questions are often misleading or useless. The "sense-datum" recommendation is misleading for it "is liable to suggest that sense-data are a special sort of thing, *extremely* thin coloured pictures, and thus liable to raise puzzles, such as 'How are sense-data related to material things?' ". (40). And one who, philosophically puzzled about the nature of propositions, numbers, and characteristics, has his question answered by "They are subsistent entities" is unlikely to be illuminated thereby. For he might well reply: "All right, then, let me put the question I wanted to ask in different words: What I wanted to know was, what is the nature of subsistent entities?" When one comes to see the general nature of a philosophical statement "the question 'Is it true or not?' vanishes into insignificance . . ." (52). For an obvious falsehood in strict logic may be illuminating and a truism of strict logic may be useless or misleading.

(4) *Style and stuff.*

The above account of Wisdom's view of the nature of philosophical statements needs expanding. According to him, philosophical statements are answers to what I have called puzzle questions, that is to paradoxical and conflict questions. But not all answers to puzzle questions are philosophical. How do answers to philosophical puzzle questions differ from answers to ordinary puzzle questions?

Every answer to a puzzle question underlines similarities or differences. But answers to ordinary puzzle questions underline similarities or differences between sorts of thing, person or happening, whereas philosophical answers underline similarities or differences between "manners in which sentences work". Thus "We are all mad, really" emphasises the similarity and continuity between the mad and the sane. And "The dog did not go round the cow" emphasises the difference between what happened when the dog attacked the cow and other happenings, such as a dog's tracing a circular path about an immobile cow. On the other hand "Laws of mathematics are really rules of grammar" emphasises a likeness between the manner in which mathematical sentences work and the manner in which rules of grammar work. "Material things are reducible to sense-data" emphasises the connection between the manner of working of sentences like "There is cheese here" and the manner of working of sentences reporting how things look, smell, sound, etc., to the speaker at the moment of speaking.

A statement about the mad differs from one about the sane in subject-matter. Similarly a statement about one sort of happening, such as a dog circling a rotating cow, differs in subject-matter from a statement about another sort of happening, such as an explosion, or the circling of a stationary cow. Statements can resemble each other in respect of the similarities of their subject-matter; differ in respect of the unlikeness of their subject-matters. But there is not this sort of similarity and/or difference between mathematical statements and rules, or between thing-statements and sensation-statements. The likeness or difference here "is not one of subject-matter (stuff) but of a different manner of use (style)" (46). Wisdom has various phrases to express this notion of a difference in "style". Thus he sometimes speaks of a difference in the "manner in which sentences work" (38), sometimes of a difference in "the manner in which sentences are used" (50). He also describes it as a difference in "style of functioning" and as a "difference in general nature" (53). So we could put it: answers to ordinary puzzle questions underline differences and similarities between different subject-matters of sentences; answers to philosophical questions underline differences and similarities between different styles of functioning of sentences.

Compare the statement that cancer is due to a germ with the statement that it is due to a chemical poison. These are statements of two different theories. But the two statements are of the same general nature—the sentences used in making them work in the same manner. For both are used to express the same sort of scientific theory, namely that sort of theory which causally explains some phenomenon by reference to something which could in principle be detected independently of the phenomenon to be explained. Next compare two remarks, both made in the words: "The man sitting opposite me in the train yesterday was small and furtive, and there was a bulge in his coat-pocket". The first remark made in these words is made by someone recounting something that had happened to him. The second is made by someone making up a story to entertain the company. The general nature of these two remarks is different; the sentence works in a different manner on the two occasions. In one case, we could say, it is used factually, in the other case fictionally.

In such a case as this, where the difference in "style of functioning" is very striking, we are inclined at times, as Wisdom remarks (53) to use the words "not really a statement" to underline the difference. People are apt to say that "fictional statements are not really statements", in order to emphasise the difference in style of functioning between sentences used in fictional narratives and those used in reminiscences. Similarly one is inclined to say of a sentence used poetically that it is "not really a statement" or that " '1 + 1 = 2' does not express a statement but registers a decision". "Now there are differences of this sort *within* the range of statements which are on most occasions unhesitatingly called statements and to which it is quite usual to apply the expressions true or false. When this is so, the differences in general nature are apt to be overlooked." Thus the difference between mathematical statements and those like "that is made of silver", and the difference between ethical statements and those like "that is red" are differences in the style of functioning of the sentences, not differences in subject-matter. These statements differ from each other in the same *sort* of way (though not of course in the same way) that fictional statements differ from factual ones, and not in the sort of way that statements about horses differ from statements about cows.

People sometimes describe even the difference between factual and fictional statements as if it were a difference in subject-matter. Thus they may say: "The difference is that the former are about real people and real happenings, whereas the latter are about imaginary people and imaginary happenings", as if the difference were like that between statements about sane people and statements about mad people. But this would be a most misleading way of describing the difference. And it would be misleading in just the same way, according to Wisdom, to say that the difference between mathematical statements and those like "This is made of silver" was that the former are about numbers whereas the latter are about material things. It would be similarly misleading to describe the difference between statements like "This is red" and ethical statements by saying that the former are about natural or physical qualities whereas the latter are about non-natural qualities, or about ethical qualities and relations, or about values.

The view Wisdom is opposing could be put: All statements, of whatever sort—material-object statements, sense-data or sensory statements, mathematical statements, ethical statements and so on—all such statements work in precisely the same "statement-making" way. (They all attribute a predicate in the same sort of way to a subject.) They differ in being, respectively, about material objects, about sense-data or sensations, about numbers, and about non-natural qualities or values.

(5) *Categories of being, translated into the formal mode.*

Philosophers who take the last-mentioned view would sometimes elaborate it somewhat as follows: "Material objects, sense-data, numbers, values and so on constitute the different categories of being. So the different sorts of statement, though they function in the same way, differ in respect of being about objects belonging to different categories of being. It is the philosopher's task to investigate these different categories of being and their interrelations."

This account of the philosopher's task is, in Wisdom's view, confused. But it is also, in a way, dead right. It is confused in so far as it carries the suggestion that different general types of statement differ in what they are *about*—one about objects of one category, another about objects of another—and in suggesting that one has to examine these "objects" and their interrelations. It is dead right in that, according to Wisdom, the philosopher's job is to investigate the interrelations between different general types of statement—between the chief different manners in which sentences are used. And this is the same investigation that is confusedly thought of as an investigation of the categories of being. "The point of philosophical statements . . .", says Wisdom (37), "is the illumination of . . . the relations between different categories of being or (we must be in the mode) the relations between different sub-languages within a language." "The philosopher's intention is to bring out relations between categories of being, between spheres of language" (39). "The philosopher's purpose is to gain a grasp of the relation between different categories of being, between expressions used in *different manners*" (42).

It was the obsession with the subject-matter idea, "that is, the idea that all sentences in the indicative differ only in the way that sentences about dogs and cats or even wind and water differ" (118), that kept us for so long "hanging about those impenetrable coverts where universals lurked, facts preyed upon events, and variables with logical constants frolicked for ever down the rides of infinity" (117). But "at last Wittgenstein gave tongue, and the quarry went away to the notes of 'Don't ask for the meaning (analysis), ask for the use', and the transformations of the formal mode—transformations such as . . . 'X in saying that S is P is asserting a proposition about mathematical entities' means 'X is using the sentence "S is P" mathematically'; 'X in saying . . . there's a dagger in the air is asserting a material thing proposition' means 'X is using the sentence . . . "there's a dagger in the air" materially, i.e., objectively'; 'X, in saying there's a dagger in the air, is asserting a proposition about a sense-datum merely' means 'X is using "there's a dagger in the air" subjectively'; 'S is P is an ethical proposition' means ' "S is P" is an ethical sentence' i.e. 'The sentence "S is P" is used ethically' ". These new formulations "leave us with the old questions, though wonderfully transformed".

(6) *How to philosophize.*

The philosopher's task today, then, is the same task as it has always been, namely what used to be described as that of "getting a grasp of the relations between the different categories of being". But nowadays we understand better what this task amounts to. We know that it is a matter of getting a grasp of the relations between the different manners in which sentences work. How can we set about trying to get this grasp?

We can try to describe in the fullest possible detail, point by point, what it is like for someone to use a sentence mathematically or ethically or generally. "If we permit ourselves to imagine vividly the talkers and the occasions when sentences of the sorts in question are used and then describe the talkers by setting down a lot of that about them which makes us say that they are using sentences 'generally', 'ethically', etc., including all their purposes, and therefore purposes other than preparing their hearers for tigers or no cake, and all their ways of supporting their sentences (not tied down by logic-book models) then we shall have descriptions of all talkers which, though very long and still incomplete, involve nothing but talk, nods, smiles and surprises" (118).

For example, the long story descriptive of the difference between Smith who uses the sentence "There's a dagger in the air" objectively, and Jones who uses it subjectively, would include such things as: Smith would be prepared to support his statement by reference to other people's reports of what they see, and by his experience prior and subsequent to the moment of speaking; would regard lack of confirmation by other people's reports and certain possible subsequent experiences of his as telling against the truth of what he says. Jones would not be prepared to support his statement in these ways, nor would he count as telling against his statement the things that Smith would count as telling against his. Smith would understand, even if he disputed, the suggestion that he might be mistaken. Jones would not. And so on. (On this see M42-44, also M149-157.) And a full description of mathematical talkers would mention the way children are taught to recite by heart "One, two, three, four, five, six . . . etc.", and are taught to use this recitation in counting and measuring. It would include a description of the learning of multiplication and addition tables, and of how remarks like "five and seven is twelve" fit into the carrying out of such activities as making change, working out how many screws will be needed for a certain carpentry job and so on. This would be only the beginning of a very long story.

The trouble with this sort of thing is that we tend to lose ourselves in the mass of detail, and fail to see the wood for the trees. "The detailed description", says Wisdom (117), "doesn't give us *grasp*." But no single short statement in general terms will adequately give the place of a general type of statement on the language-map. A correct short answer won't do the trick. "The only *correct* answer to a metaphysical question 'What is an X?' is 'An X' " (M53). And that's not much use.

Alternatively we might try uttering metaphysical paradoxes—statements false as strict logic, but illuminating in that they show the familiar in a new light, bring out connections hidden by ordinary language. But "metaphysical paradoxes, such as 'Ethical discussion is propaganda', 'Reflective thought is thought about words', are dangerous and need to be balanced by the reassertion of the old truths in their opposites" (263). So "we may try opposite falsehoods or we may say, 'Be careful that this expression . . . does not suggest certain analogies at the expense of others . . . . Do notice how like to . . . etc., and yet, etc.' " (50).

Up to a point this description fits Wisdom's procedure in dealing with specific philosophical problems. He does set alongside each other the opposing falsehoods and the corresponding truisms. He does try to bring out what it is that tempts people into the falsehoods, and thereby shows those resemblances and connections between ways of speaking that, ordinarily concealed, are brought by them into the open. He does this, not for one falsehood about a particular matter, but for many different falsehoods. He also warns us that falsehoods are falsehoods, and warns us against being misled by some of the analogies they suggest. And in the course of explaining what can be said in favour of and against the different views he does, incidentally, give a lot of the detailed point by point description of talkers.

But this description still misses a most important feature of philosophical problems, and of Wisdom's way of dealing with them. People *worry* about philosophical problems. They are harassed by logical conflicts in ways that have some resemblance to the ways in which neurotics are harassed by emotional conflicts. Typically a person in the grip of a philosophical puzzle feels that "unquestionable premisses have led by unquestionable steps to an entirely questionable conclusion. In these cases the difficulty is not removed by doing any of the three things to be done, namely (1) deny the premiss, (2) protest at a step, (3) accept the conclusion. For, whichever one does, the repressed objectionableness of it leaves a haunting anxiety which in the end leads to rebellion in oneself or others" (132). And, according to Wisdom, the proper way to deal with philosophical worry is to use a technique that has some analogy to the psycho-analytic technique for dealing with emotional conflicts. "The whole difficulty arises like difficulty in a neurotic; the forces are conflicting but nearly equal. The philosopher remains in a state of confused tension unless he makes the effort necessary to bring them all out by speaking of them and to make them fight it out by speaking of them together. It isn't that people can't resolve philosophical difficulties but that they won't. In philosophy it isn't a matter of making sure that one has got hold of the right theory but of making sure that one has got hold of them all. Like psycho-analysis it is not a matter of selecting from all our inclinations some which are right, but of bringing them all to light . . ." (M115n). In the concluding part of this article something will be said about the sources, according to Wisdom, of philosophical worry.

(*To be concluded.*)

BOOKS RECEIVED

(Mention in this list neither precludes nor guarantees later review.)

AESTHETICS AND LANGUAGE. Edited with an Introduction by William Elton. (Blackwell, 1954. vi + 186 pp.) Price (U.K.), 21s.

A collection of articles, written mainly from the "linguistic" point of view, by Ryle, Hampshire, Passmore, and others.

LOGIC AND LANGUAGE, Second Series. Edited by Antony Flew. (Blackwell, 1954, 242 pp.) Price (U.K.), 21s.

DILEMMAS. By Gilbert Ryle. (Cambridge, 1954. 129 pp.) Price (U.K.), 10s. 6d.

The Tarner Lectures, 1953; a discussion of puzzles concerned with fatalism, pleasure, perception, etc.

NATURE, MIND AND MODERN SCIENCE. By Errol E. Harris. (Allen and Unwin, 1954—Muirhead Library of Philosophy. xvi + 455 pp.) Price (U.K.), 35s.

NEW STUDIES IN THE PHILOSOPHY OF DESCARTES. By N. Kemp Smith. (Macmillan, 1953. xii + 369 pp.) Price (U.K.), 25s.

DESCARTES' PHILOSOPHICAL WRITINGS. Selected and translated by N. Kemp Smith. (Macmillan, 1953. vii + 316 pp.) Price (U.K.), 25s.

PASCAL AND THE MYSTICAL TRADITION. By F. T. H. Fletcher. (Blackwell, 1954. vii + 156 pp.) Price (U.K.), 25s.

RIGHT AND WRONG. By A. Spir. Translated by A. F. Falconer. (Oliver and Boyd, 1954. viii + 86 pp.) Price (U.K.), 10s. 6d.

KIERKEGAARD AND HEIDEGGER. By M. Wyschogrod. (Routledge, 1954. xii + 156 pp.) Price (U.K.), 16s.

THE END OF TIME — A MEDITATION ON THE PHILOSOPHY OF HISTORY. By Josef Pieper. (Faber, 1954. 157 pp.) Price (U.K.), 10s. 6d.

NUPE RELIGION. By S. F. Nadel. (Routledge, 1954. x + 288 pp., with 31 illustrations.) Price (U.K.), 25s.

EDWARD GIBBON — HIS VIEW OF LIFE AND HIS CONCEPTION OF HISTORY. By Per Fulgum. (Oslo Studies in English, University of Oslo, 1953. 176 pp.) Price (U.K.), 10s. 6d.

GROWTH IN ENGLISH EDUCATION. By H. C. Dent. (Routledge, 1954. xi + 208 pp.) Price (U.K.), 16s.

An account of changes since 1946.

PROSPERITY AND PARENTHOOD. By J. A. Banks. (Routledge, 1954. vi + 240 pp.) Price (U.K.), 21s.

A study of family planning among the Victorian middle classes.

THE ETHICS OF CIVILISATION. By Arnold H. Kamiat. (Public Affairs Press, Washington, 1954. vi + 80 pp.) Price, $2.

CLAUDE HELVETIUS—PHILOSOPHER OF DEMOCRACY AND ENLIGHTENMENT. By Irving L. Horowitz. (Paine-Whitman, New York, 1954. 196 pp.) Price, $3.

A PHILOSOPHICAL STUDY OF THE HUMAN MIND. By Joseph Barrell. (Philosophical Library, 1954. xii + 575 pp.) Price, $6.

THE JUDGMENT OF HISTORY. By Marie Collins Swabey. (Phil. Lib., 1954. 257 pp.) Price, $3.75.

DICTIONARY OF EUROPEAN HISTORY. Compiled by W. S. Roeder, with an Introduction by H. E. Barnes. (Phil. Lib., 1954. viii + 316 pp.) Price, $6.

"Provides concise and reliable information concerning most of the events and prominent personalities from 500 A.D. to the present."

THE PERMANENT REVOLUTION IN SCIENCE. By Richard L. Schanck. (Phil. Lib., 1954. xii + 112 pp.) Price, $3.

THE SYMBOLS OF RELIGIOUS FAITH. By Ben F. Kimpel. (Phil. Lib., 1954. x + 198 pp.) Price, $3.75.

LETTERS TO MY DAUGHTER. By Dagobert D. Runes. (Phil. Lib., 1954. 131 pp.) Price, $2.50.

DIE ENTSTEHUNG DER ORDNUNG. By Leopold Götz. (Fretz and Wasmuth, Zürich, 1954. 191 pp.)

PHILOSOPHISCHE WELTANSCHAUUNG. By Max Scheler. (Dalp-Taschenbucher, A. Francke, Bern, 1954. 126 pp.) Price, S.Fr. 2.80.

KLEINE TIERSEELENKUNDE. By Werner Fischel. (Dalp-Taschenbucher, A. Francke, Bern, 1954. 125 pp.) Price, S.Fr. 2.80.